

January 7, 1971

Date	4/13/95
ADC Signature	<i>Sara B. Wilder</i>
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UCC-ND ENVIRONMENTAL COMMITTEE
ORGANIZATIONAL MEETING*
JANUARY 4, 1971

The first meeting of the Nuclear Division Environmental Committee, initiated by Mr. R. F. Hibbs for the purpose of apprising management of the extent and possible impact of the Division's operations on the environment, was held January 4.

The agenda consisted of review of the current status of information on effluent release, monitoring, and control; discussion of procedures and format for getting the desired additional information, particularly that concerning radioactive effluents requested by S. R. Sapiriet; and setting of interim target dates for development of a reply to the AEC letter by the requested date, i.e., February 15.

Due to the requested information being in considerably different form and detail than that submitted in the past, it became apparent that substantial additional work might be needed to provide a fully detailed summary of the current position, including recommendations and costs for revisions to improve both monitoring and control. The problem is complicated by the apparent necessity to provide data for the many points at which relatively small, but perhaps significant in terms of the newly developing criteria, amounts of materials would be emitted.

Accordingly, it was decided to concentrate on identification of all release points, determination as to which might be significant in terms of the new criteria, and provision of a reporting format, implemented for calendar year 1969, to supply the necessary information for these points. I. G. Speas presented a suggested form for tabulation of the required data, and it was agreed that all facilities would use this form in submission of reports to the Committee.

The target date for submission of facility reports to the Committee was set for its next meeting on February 1 at ORGDP. Brief progress reports and outlines of proposed reports are to be phoned in to the Chairman by January 15. Interim questions are to be resolved by phone as needed. It was emphasized that the drafts submitted by February 1 must be in

* The Committee consists of the following:

R. G. Jordan, Chairman
R. C. Baker
W. C. Hartman
J. H. Pashley
R. W. Schaich
I. G. Speas

† Sapiriet, S. R., letter to R. F. Hibbs, *Radioactive Effluent Release, Monitoring, and Control*, U.S.A.E.C., Oak Ridge Operations, Oak Ridge, Tennessee (November 24, 1970).

This document has been approved for release to the public by:

Technical Information Officer
Oak Ridge K-25 Site

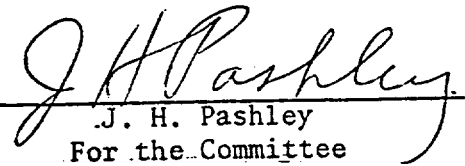
Date

Oak Ridge K-25 Site
Oak Ridge, Tennessee 37831-7314
managed by
MARTIN MARIETTA ENERGY SYSTEMS, INC.
for the U.S. DEPARTMENT OF ENERGY
under Contract DE-AC05-84OR21400

ChemRisk Document No. 2218

suitable form and proper detail for ready incorporation into a document suitable for transmission to the AEC to meet the February 15 deadline.

The continuing responsibilities of the Committee in study and evaluation of potential release problems (not only for radioactive materials but also for other UCC-ND plant materials which might have possible effects on the environment) and in collation of information to be utilized for UCC-ND management guidance including response to AEC queries were stated.


J. H. Pashley
For the Committee

JHP:ga

Distribution

Mr. R. C. Baker
Mr. F. R. Bruce
Mr. J. M. Case
Mr. S. J. Cromer
Mr. F. L. Culler, Jr.
Mr. W. C. Hartman
Mr. R. F. Hibbs
Mr. R. G. Jordan
Mr. J. H. Pashley
Mr. R. W. Schaich
Mr. I. G. Speas
Mr. P. R. Vanstrum
Mr. W. J. Wilcox, Jr.
Mr. R. A. Winkel

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SH Welch
ADC Signature

4/13/95
Date

February 18, 1971

UCC-ND ENVIRONMENTAL COMMITTEE MEETING
FEBRUARY 2, 1971

The second meeting of the Nuclear Division Environmental Committee was held February 2. The agenda consisted of the review of facility report drafts, discussion of details on incorporation of these into the forthcoming report*, and consideration of techniques for handling chemical effluents.

Although there were still some minor differences in table utilization and style, it was concluded that the facility reports were in generally good shape. Minor changes were to be made by the end of the week to allow publishing to meet the February 15 deadline. Further consideration of means of improving monitoring and control of radioactive effluents is needed at some points, and individual site representatives are to pursue such studies.

It was decided that evaluation of chemical effluent problems would be the main topic for the next meeting on March 9. Utility-associated effluents such as from coal-fired steam plants were to be included. Various techniques were discussed. It appeared that an input-output type model for each major item might be a good starting approach to scoping the problems. The Purchasing Division could provide figures on total quantities of chemicals purchased; and from these, key items could be selected for further study. Other techniques, such as stack and effluent stream monitoring, would be utilized. It is anticipated that the results would be reported in similar format to that used for radioactive materials. Security problems can arise since incorporation of specific chemicals into product in specific areas may be classified.

Members of the group have made plant tours of Y-12 and the ORNL. The Y-12 tour on January 22 included, besides the Oak Ridge members of the committee, Mr. J. A. Parsons and Mr. J. C. Little of the Y-12 Plant. The ORNL tour was made on Thursday, February 4, and included (besides the Oak Ridge members of the committee) L. E. Lasher, H. H. Abee, and

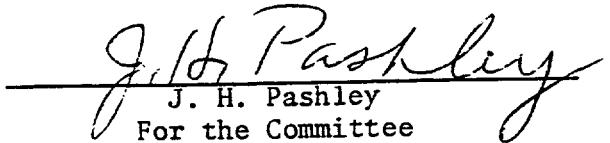
* Jordan, R. G., et al, *Radioactive Effluent Monitoring and Control, Calendar Year 1969*, Union Carbide Corporation, Nuclear Division, Oak Ridge Gaseous Diffusion Plant, February 12, 1971 (UCC-ND-162).

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William L. Davis
Technical Information Officer
Oak Ridge K-25 Site

4/28/95
Date

J. R. Gissel of ORNL. In each case, a preliminary briefing meeting was held to orient members of the committee on pollution abatement equipment which they were about to see and to briefly mention other facilities which were omitted as being less significant in the overall sense. Tour agenda lists are attached.


J. H. Pashley
For the Committee

JHP:ga

attachment

Distribution

Mr. R. C. Baker
Mr. F. R. Bruce
Mr. J. M. Case
Mr. S. J. Cromer
Mr. F. L. Culler, Jr.
Mr. W. C. Hartman
Mr. R. F. Hibbs
Mr. R. G. Jordan
Mr. J. H. Pashley
Mr. R. W. Schaich
Mr. I. G. Speas
Mr. P. R. Vanstrum
Mr. W. J. Wilcox, Jr.
Mr. R. A. Winkel

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INTERNAL CORRESPONDENCE

NUCLEAR DIVISION

POST OFFICE BOX P, OAK RIDGE, TENNESSEE 37830

To (Name)	Mr. R. C. Baker	Date	February 19, 1971
Division	Mr. W. C. Hartman		
Location	Mr. J. H. Pashley	Originating Dept.	
	Mr. R. W. Schaich		
	Mr. I. G. Speas	Answering letter date	
Copy to	Mr. F. R. Bruce	Mr. G. R. Jasny	Subject
	Mr. J. M. Case	Mr. P. R. Vanstrum	UCC-ND Environmental
	Mr. F. L. Culler, Jr.	Mr. W. J. Wilcox, Jr.	Committee Meeting
	Mr. R. F. Hibbs	Mr. R. A. Winkel	

The UCC-ND Environmental Committee will convene March 9, 2 p.m., in the K-25 Superintendent's conference room.

The following items, along with others you may wish to add, will serve as the agenda:

- 1) Discussion of any feedback (internal or external) on Report UCC-ND-162. Listing by installation representatives of any apparent problem areas uncovered in report preparation or previously known.
- 2) Plans for performing additional studies on monitoring (source, concentrations and volumes) and control. Any estimates of costs for improved monitoring, control.
- 3) Information available at each installation, possibly from stores or purchasing records, on chemical usage. Identification of most probable chemical pollutants at each installation.
- 4) An approach to the analysis of a typical chemical pollutant problem. Fluoride ion at Paducah would be a good example - Dick Baker.
- 5) Suggested format of chemical effluent report - Irv Speas.
- 6) Installation objectives for reduction of pollution. Establishing objectives with installation management and subsequent follow-up.

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Kevin A. Quinn 4/28/95
Technical Information Officer
Oak Ridge K-25 Site

Date

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Sarah H. Welch
ADC Signature

4/13/95
Date

February 19, 1971

Bill Hartman will arrange for a tour of K-25 with discussions of waste-handling facilities and practices. This tour will start at 10 a.m., March 9.


R. G. Jordan

RGJ:ayb

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classification and has been determined to
be UNCLASSIFIED.

March 29, 1971

ADC Signature

UCC-ND ENVIRONMENTAL COMMITTEE MEETING
MARCH 9, 1971

Date

The UCC-ND Environmental Committee met March 9, at the Oak Ridge Gaseous Diffusion Plant.

The meeting agenda* items were as follows:

1. Feedback on Report

Generally the response to the report for CY-69† has been favorable. Mr. Schaich reported that emission of 4500 Ci of tritium from the molten salt reactor experiment had not been included and that this fact has been communicated to the AEC. Mr. Speas commented that Y-12 had been asked for additional information on Bear Creek, including alpha count as split between thorium and uranium. He stated that the alpha value is about 5×10^{-7} μ Ci/cc, while the MPC for drinking water is 3×10^{-5} μ Ci/cc. A split between thorium and uranium has not been obtained in the past, but for current purposes 85% uranium and 15% thorium is being assumed.

2. Plans for Additional Monitoring

Some progress is being made in this area. Mr. Hartman commented on procurement of a simple proportional flow sampler to be used for obtaining a better continuous sample at the K-1407 pond discharge and on the improvement of monitoring at the purge point by tying the vent stacks together and taking a continuous sample for better estimation of the total amount vented at this point.

* Jordan, R. G., *UCC-ND Environmental Committee Meeting*, Union Carbide Corporation, Nuclear Division, Oak Ridge Gaseous Diffusion Plant, February 19, 1971.

† Jordan, R. G., et al., *Radioactive Effluent Monitoring and Control*, Union Carbide Corporation, Nuclear Division, Oak Ridge Gaseous Diffusion Plant, February 12, 1971 (UCC-ND-162).

Since the meeting, the AEC has requested a small amount of additional information and has obtained declassification of the information which had required the confidential supplement. Accordingly, pages 7, 8, and 9 have been reissued. Replacement pages are available from the facility committee members and the ORGDP Graphic Arts Department. Insertion of the pages may best be accomplished by Reproduction Departments which should have a machine to simplify the change.

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Oak Ridge K-25 Site

Date

Mr. Jordan pointed out that the FY-73 budget has been called for and that budget figures for necessary pollution abatement and monitoring equipment should be submitted.

3. Information Available at Each Installation on Chemical Usage

Mr. Speas discussed difficulties with use of stores or purchasing records on chemical usage in pollution analysis. While such information is of value in pointing to areas which should be given further attention and in beginning input-output analysis, it can be misleading because of fluctuating inventories and other problems.

4. Paducah Information on Fluorides

Mr. Baker discussed the problems inherent in applying an {input-product output = loss} calculation to estimation of fluoride emissions. The major difficulty is that both the input and product output are relatively large numbers; thus small errors in their estimation can lead to relatively large errors in estimation of their difference. Such difficulties are definitely involved in this approach, and emission measurements would appear to be the only positive way of getting precise estimates if needed. Nevertheless, input-output analysis can pinpoint possible problem areas and help in showing where monitoring efforts should be emphasized.

5. Suggested Format of Chemical Effluent Report

Mr. Speas discussed the Y-12 approach to the problem. Basically, it is to include more or less permanent details of system description and so forth, in one report and supplement that volume with periodic update data in a second report having a loose-leaf format*. The "permanent" information could also be put in notebook form so that any update there might be accomplished pagewise. This procedure makes for efficiency in preparation and reproduction, yet does not sacrifice immediacy of information for reference purposes. A sample outline provided by Mr. Speas is attached. It is expected that each installation would generate its own reports to fit the individual plant need.

6. Installation Objectives

Installation objectives are to further reduce releases and to provide sufficient sampling and analytical results to demonstrate that

* The pertinent Y-12 reports are *Chemical Waste Management*, Union Carbide Corporation, Nuclear Division, Y-12 Plant, May 21, 1969 (Y-DD-43); and *Air and Water Effluent Measurements*, Union Carbide Corporation, Nuclear Division, Y-12 Plant (Y-KB-80).

March 29, 1971

Page 3

pollution control is adequate. Strenuous efforts must be made to keep costs within reason; however, it is also apparent that some additional costs will probably be required. Approval for these expenditures, of course, must be obtained at each installation.

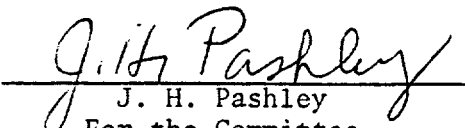
Additional business included discussion of a letter sent to J. A. Elkins by John W. Anderson, District Director of the East Tennessee Development District, regarding solid waste. Mr. Jordan pointed out that different local, state, and national agencies are requesting environmental data. All responses to such requests will be made by the AEC. Each manager should be aware that, if he receives such a request, it is his obligation to forward it, with the appropriate data, through channels to the Commission.

Brief organizational outlines of the pollution study groups at the four plants are attached.

The forthcoming visit of the Environmental Protection Agency people to Oak Ridge on April 19, was discussed. Apparently, the main topic of discussion will be liquid effluents.

Prior to the meeting, the members toured the K-25 area. An agenda for the tour is attached.

The next meeting of the Committee was tentatively scheduled for April 27, 1971, at Paducah.


J. H. Pashley
For the Committee

JHP:ga

Attachments

Distribution

Mr. R. C. Baker
Mr. F. R. Bruce
Mr. J. M. Case
Mr. S. J. Cromer
Mr. F. L. Culler, Jr.
Mr. W. C. Hartman
Mr. R. F. Hibbs /
Mr. R. G. Jordan /
Mr. J. H. Pashley
Mr. R. W. Schaich
Mr. I. G. Speas
Mr. P. R. Vanstrum
Mr. W. J. Wilcox, Jr.
Mr. R. A. Winkel

PADUCAH PLANT POLLUTION CONTROL COMMITTEE

Effluent Committee

R. C. Baker, Chairman	Industrial Relations
C. A. Powell	Operations (Chemical)
C. F. Spencer	Engineering
B. E. McDougal	Industrial Relations
V. A. Smith	Fabrication and Maintenance
R. F. Smith	Laboratory
S. Bernstein	Operations (Operations Engineering)

Routine Surveillance and Environmental Monitoring

R. C. Baker, Chairman	Industrial Relations
B. E. McDougal	Industrial Relations
H. Coltharp	Industrial Relations (Safety)
A. W. Russell	Industrial Relations (Safety)
C. W. Turok	Industrial Relations (Industrial Hygiene)

Subcommittee for Planning Integrated Liquid Effluent Control System

R. C. Baker	Operations (Operations Engineering)
E. W. Richardson	Operations (Utilities)
A. W. Gorline	Engineering
H. Lang	Laboratory
Alice Lemmonds	

ORNL WASTE HANDLING PRACTICES STUDY--ORGANIZATION

ADVISORY COMMITTEE

F. L. Culler, Chairman	Assistant Director
F. R. Bruce	Assistant Deputy Director
J. A. Cox	Superintendent, Operations
W. H. Jordan	Senior Research Advisor
K. Z. Morgan	Director, Applied Health Physics
A. F. Rupp	Superintendent, Laboratory Services
D. B. Trauger	Director, Advance Gas-Cooled Reactors

Coordinator for GE Work

R. M. Hill	General Engineering
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Planning

J. P. Jarvis	Chemical Technology
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STUDY COMMITTEE

W. D. Burch, Chairman	Chemical Technology
R. W. Schaich, Vice Chairman	Radioisotope Processing

Solid Radioactive Waste

J. R. Gissel, Chairman	Plant and Equipment Division
R. W. Schaich	
T. A. Arehart	Safety Radiation Control
R. D. Seagren	Isotopes Engineering

Liquid Waste Disposal

R. E. Blanco, Chairman	Health Physics
F. T. Binford	Safety and Radiation Control
D. G. Jacobs	Health Physics

ILW Collection and Treatment System

F. N. Browder, Chairman	Chemical Technology
E. J. Witkowski	Operations, Laboratory Facilities
Gibson Morris	General Engineering

Process Waste System

T. A. Arehart, Chairman	
R. W. Schaich	
R. E. Blanco	

Gaseous Waste

A. B. Fuller, Chairman	General Engineering
F. T. Binford	
E. J. Witkowski	

Sanitary, Chemical, and Industrial Waste

N. E. Bolton, Chairman	Industrial Hygiene
L. T. Corbin	Assistant Director, Analytical Chemistry
J. R. Gissel	

Environmental Monitoring

H. H. Abee, Chairman
D. G. Jacobs
D. J. Nelson

Health Physics Radiation Monitoring

Environmental Studies

Regulations

F. T. Binford, Chairman
T. A. Arehart
D. J. Nelson

Y-12 Environmental Committee

Approval of Budget and Effluent Release Data:

G. R. Jasny	Director of Engineering
G. A. Strasser	Superintendent, Technical

Approval of Routine Pollution Related Data:

I. G. Speas	Engineering Mechanics Department
J. D. McLendon	Radiation Safety Department

Committee

I. G. Speas, Chairman	Engineering Mechanics Department
P. E. Stein	Engineering Mechanics Department
J. C. Little	Engineering
C. E. Muzzall	Facilities Engineering Department
J. D. McLendon	Radiation Safety Department
M. Sanders	Radiation Safety Department
H. G. Taylor	Metal Preparation
H. C. Francke	Development
N. J. Tronolone	Utilities

ORGDP Environmental Committee

W. C. Hartman, Chairman	Superintendent, Shift Operations and Security
D. L. Burkett	Gaseous Diffusion Development
E. J. Barber	Gaseous Diffusion Development
I. C. Flanders	Separations Systems
D. S. Gordon, Jr.	Operations
N. B. Schultz	Industrial Relations (Environmental Health and Safety)
T. Shapiro	Engineering
B. H. Thompson	Operations
C. W. Weber	Laboratory
J. C. Young	Fabrication and Maintenance

UCC - ND ENVIRONMENTAL COMMITTEE

TOUR AGENDA - K-25 Liquid and Gaseous Effluents

Tuesday, March 9, 1971

10:00 A.M.	Briefing	W. C. Hartman
10:30 A.M.	Tour of Effluents	J. Dykstra C. C. Goldenschue
11:00 A.M.	Cascade Operations	T. E. Koprowski
11:30 A.M.	Cascade Tour	T. E. Koprowski
12:15 P.M.	Lunch	
1:00 P.M.	Tour of K-1401 Shops	C. L. Gritzner

2. Sketch

3. Materials Disposed of, Composition, and Quantities

D. Steam Plant Ash Disposal

1. Description

2. Sketch

3. Quantities

VI. Pollution Abatement

A. Budget Items

B. Status of Development Work, Studies, and Operating Tests,
Planned and In Progress

C. Waste Management Operating Cost

VII. Bibliography

VIII. Appendix - Regulations

A. AEC Manual Chapters

B. Standard Practice Procedures

C. Tennessee Stream Classifications and Regulations

D. Summary of Tennessee Air Pollution Control Regulations

E. Summary of USPHS Drinking Water Standards (1962)

F. National Ambient Air Quality Standards

IV. Atmospheric Effluents

A. General

B. Stack Emissions

1. Type Process Systems
2. Schematics of Air Cleaning and Material Recovery Systems
3. Monitoring Program - Chemicals Analyzed, Frequency, Limits, Reference for Limits, and Types of Analyses
4. Chemical Effluent Quantities (Reference to Volume 2 for Periodic Effluent Concentrations)

C. Ground Level Air Sampling

1. Monitoring Program - Chemicals Analyzed, Frequency, Limits, Reference for Limits, and Types of Analyses
2. Chemical Effluent Quantities (Reference to Volume 2 for Periodic Effluent Concentrations)

D. Dustfall Sampling

1. Monitoring Program - Chemicals Analyzed, Frequency, Limits, Reference for Limits, and Types of Analyses
2. Chemical Effluent Quantities (Reference to Volume 2 for Periodic Effluent Concentrations)

V. Solid Waste Disposal

A. General

B. Burial Grounds (Radioactive and Sanitary Landfill)

1. Description
2. Sketches
3. Materials Disposed of, Composition, and Quantities
4. Fill Area Utilization Rate and Reserve Area

C. Quarry Disposal Operations (Applicable to Y-12, ORGDP, and ORNL)

1. Description

CHEMICAL EFFLUENT MONITORING AND CONTROL

VOLUME 1

Table of Contents

List of Figures

- I. Introduction
 - A. Identification of Facility
 - B. Functions
- II. Identification of Waste Streams (See Table 1)
 - A. Physical and Chemical Forms
 - B. Carrier Streams
 - C. Generation Rates and Points of Release to the Environment
- III. Liquid Effluents
 - A. General
 - B. Name of Carrier Stream
 - 1. Description
 - 2. Monitoring Program - Chemicals Analyzed, Frequency, Limits, Reference for Limits, and Types of Analyses
 - 3. Photograph and/or reference drawing.
 - 4. Schematic of Sampling System
 - 5. Chemical Effluent Quantities (Reference to Volume 2 for Periodic Effluent Concentrations)
 - C. (Same as above for other streams)
 - D. Sanitary Waste Disposal
 - 1. Description
 - 2. Flow Quantity
 - 3. Effluent B.O.D. *2 minutes etc*

CHEMICAL EFFLUENT MONITORING AND CONTROL - PERIODIC MEASUREMENTS

VOLUME 2

Table of Contents

- I. Introduction
- II. Liquid Effluents
 - A. Name of Carrier Stream
 - 1. Brief Description and Listing of Chemicals Analyzed, Frequency, Limits, Reference for Limits, and Types of Analyses
 - 2. Graph of Stream Flow
 - 3. Graphs of Periodic Effluent Concentrations
 - B. (Same as above for other streams)
- III. Atmospheric Effluents
 - A. Stack Emissions
 - 1. Brief Description and Listing of Stacks, Chemicals Analyzed, Frequency, Limits, Reference for Limits, and Types of Analyses
 - 2. Graphs and/or Tables of Periodic Effluent Concentrations
 - B. Ground Level Air Sampling
 - 1. Brief Description and Listing of Chemicals Analyzed, Frequency, Limits, Reference for Limits, and Types of Analyses
 - 2. Graphs of Periodic Concentrations
 - C. Dustfall Sampling
 - 1. Brief Description and Listing of Chemicals Analyzed, Frequency, Limits, Reference for Limits, and Types of Analyses
 - 2. Graphs of Periodic Concentrations

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Sara H. Welch
ADC Signature
4/13/95
Date

June 4, 1971

UCC-ND ENVIRONMENTAL COMMITTEE MEETING
MAY 25, 1971

The UCC-ND Environmental Committee met at Paducah on May 25, with all members present except W. C. Hartman who was represented by J. G. Rogers. Guests included R. D. Seagren of ORNL and several Paducah Plant personnel including J. L. Clark, R. W. Levin, A. J. Legeay, H. Lang, A. Lemonds, E. W. Richardson, and J. K. Phipps.

The first item on the agenda was discussion of EPA visits to Oak Ridge and related topics. Speas stated that the EPA (according to Kaplan of the Atlanta office) is planning to ask that maximum concentrations of copper and zinc in water returned to the river be 0.02 ppm. Speas indicated that, since water in the river now contains 0.2 to 0.3 ppm copper and 0.05 ppm zinc, this would seem unreasonable. Schaich mentioned that additional work would probably be required of ORNL in the areas of monitoring pH, temperature, and chemical discharges. The situation regarding current radioactive material discharge would appear to be relatively satisfactory except that the status of White Oak Lake and the area just below the dam still is up in the air. There is some indication that attempts may be made to apply standards at the several small creeks into which waste water is discharged. This could be troublesome, particularly should strict temperature and pH control ranges be assigned. Rogers mentioned that K-25 has been using monthly composite samples but now, in some cases, is using weekly composites to satisfy information requirements. Proportional samplers are being installed to provide better composite samples. Speas commented that Y-12 also has gone to weekly composites on thorium and uranium, and has switched to a photometric measuring technique instead of flame absorption which EPA found inadequate. Speas mentioned that the new oil skimmer at New Hope Pond, which was not in service at the time of the EPA visit, is now working; and AEC seems to be satisfied with the results. Oil disposal was briefly discussed. Paducah disposes of oil at the rate of 10,000 gallons per year to a tanker operator. There remains a considerable uncertainty as to what discharge standards are to be applied and where. Speas commented that discharge permits will be required by July 1 for 14 parameters, while the other 51 categories will have to be answered yes or no according to whether each will be a significant item. The quantitative information on these items is supposed to be supplied by October 1. There was some suggestion that each separate outfall would require a separate permit with associated record keeping. If several processes contributed to one outfall, it might be necessary to describe each process. The AEC (Jerry Wing is a prime contact) is to provide information, guidance, and forms to be filled out to meet the requirements. Various comments were heard on the capital requirements for pollution control, with ORNL mentioning a \$10 to \$15 x 10⁶ figure involving also solid waste handling and hydrofracturing improvements, while Paducah indicated \$2 x 10⁶ would be required for a centralized waste treatment facility. The general conclusions were that:

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Orvin Duck
Technical Information Officer
Oak Ridge K-25 Site

4/28/95
Date

1. Things are still in a state of flux;
2. Some rule proposals would be costly and time-consuming to implement, and might even be considered not feasible; and
3. Record keeping and analytical work under the best of circumstances is going to require substantial effort.

A comment was made that meetings to be held with the AEC might clarify matters. A formal report from EPA on its recent Oak Ridge visit is not expected for about six months; Paducah has yet to hear from the FWQA (EPA predecessor) visit to September 1970.

Item 2 on the agenda was installation reports on chemical effluents. The general format presented at the previous meeting had been discussed by Speas with Wing of the AEC and found acceptable with one relatively minor change*. Miss Alice Lemonds of the Paducah Plant then presented a more complete study of the fluoride emission problem which had been discussed at previous meetings. A principal discharge source is HF content of fluorine cell product gases. For example, the hydrogen vent from the feed plant has an HF concentration of about 3.5%. Consideration has been given to HF recovery techniques for the feed plant; however, because of the short range of operation (i.e., FY 75 looks like the last year of operation of the feed plant), these techniques such as sorption on activated carbon have not been considered economical†. In FY 71 about 110,000 pounds of gaseous fluoride will be discharged from all sources. In FY 72 the plant quantity would be 190,000 pounds of fluoride due to increase in feed plant activity. This is equivalent to about 1.5% of the hydrogen fluoride entering the feed manufacturing process. Despite these emissions, the gaseous fluoride concentration at the fence is only about 50% of the allowable community air quality value (Tennessee and some other states, no value for Kentucky as yet); however, it may be difficult to meet short-term (12-hour) limits due to severe periodic atmospheric inversion conditions. The HF emission from the Metals Plant (C-340) is negligible due to the effectiveness of the KOH scrubbing system used there. The spent scrubber waste is dumped; thus, there could be a water pollution problem of the magnitude of tons of fluoride per year. In addition to these gaseous and liquid wastes, about 25,000 pounds of metal fluorides, principally magnesium fluoride from the metal plant, are released to the air per year despite extensive use of hooding with bag filters on exhaust streams. The question certainly arises as to which of the control parameters need be applied.

* Under III (Liquid Effluents) - D (Sanitary Waste Disposal) change item 3 to Effluent Characteristics (B.O.D., Chemical Content, Etc.).

† A very round capital requirement for handling the problem in the feed plant is a quarter-million dollars; however, engineering studies have not been made.

1. Fence concentrations,
2. Concentrations in vent, and
3. Total quantity.

Levin emphasized that an answer as to what restrictions would be applied is needed as soon as possible so that any necessary steps, including development work, could be undertaken before an unrealistic short lead time deadline is imposed. It was commented that this topic, along with chromium problems, will be taken up at the AEC planning meeting on June 16 and 17.

The question on the chromium discharge problem and the efficacy of the ORGDP resoftening technique as it might be applied to Paducah was brought up. Since the ORGDP experts in this area were not present at the meeting and discussion of the use of this particular technique was somewhat afield from the agenda, it was suggested that these discussions be handled directly between concerned personnel at Paducah and ORGDP, preferably by June 15.

Plans for centralizing waste treatment operations at Paducah were described by H. Lang. All effluents would be brought to a common location for treatment, partly by use of open ditching. Chromates would be reduced with ferrous sulfate, then combined with other effluents, neutralized with lime, and then clarified before discharge. The project (as previously mentioned, costs about \$2 million) is being requested for FY-73.

The status of several information submissions, including the 1970 radioactive effluent report which is due to the AEC by July 1, was discussed. No particular difficulties other than the burgeoning quantity of paper work were mentioned.

The final topic on the agenda was status of solid waste burial grounds, including records. The objective is to make sure that adequate burial records are being maintained at each installation.

Seagren exhibited typical ORNL records. Information giving sources, material description, and location as to depth and coordinates is stored at the Computing Technology Center on magnetic tape and may be outputted in various ways. The system apparently works well, and it has been possible to locate specific items for retrieval using it. The information is initially entered in an operations log which is the basic source and which is retained indefinitely.

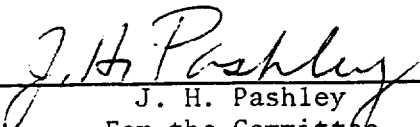
Speas indicated that Y-12 maintains maps. The Maintenance Division, which does the actual burying, maintains log type records. The Chemical Division also maintains records. The information is not computerized. Y-12 also maintains a sanitary landfill and keeps records as to tonnages but not specific details. The sanitary landfill input has been slightly less than 8,000 tons per year.

Paducah disposes of magnesium fluoride slag by dumping into an abandoned holding pond area. Sometimes drums containing reject uranium tetra-fluoride (metals plant) are also buried there. Records are maintained as to estimated quantities placed there. Chopped metal wastes are loaded into drums, covered with oil, and buried west of this area. Records are maintained on location of these burials. There is a classified materials burial ground mainly for slightly contaminated classified metal parts. A pile of fly ash, placed outside of the fenced area, is being used as a sanitary landfill and currently miscellaneous materials are being buried in trenches there.

ORGDP maintains a map on the burial sites and maintains records on what and how much was buried in each trench or grave.

It was pointed out that burial is a form of warehousing or permanent storage requiring some degree of perpetual care and thus should not be categorized as an effluent. It was concluded that a brief summary should be prepared for use of the Committee, with limited distribution to other Carbide personnel. The information should include everything through CY 1970.

A tour of the Paducah Plant, conducted by Dick Baker, was held in the afternoon. The feed plant, metals plant, water treatment facility, solid waste disposal areas, and sewage disposal plants were visited; and the plant perimeter was toured to see the plant outfalls.


J. H. Pashley
For the Committee

JHP:ga

Distribution

Mr. R. C. Baker
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Mr. F. L. Culler, Jr.
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Mr. J. H. Pashley
Mr. R. W. Schaich
Mr. I. G. Speas
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Mr. W. J. Wilcox, Jr.
Mr. R. A. Winkel

**UNION
CARBIDE**

INTERNAL CORRESPONDENCE

NUCLEAR DIVISION

POST OFFICE BOX P, OAK RIDGE, TENNESSEE 37830

To (Name) Mr. R. C. Baker
Division Mr. W. C. Hartman
Location Mr. J. H. Pashley
Mr. R. W. Schaich
Mr. I. G. Speas

Date October 26, 1971

Originating Dept.

Answering letter date

Copy to Mr. F. R. Bruce
Mr. J. M. Case
Mr. F. L. Culler, Jr.
Mr. R. F. Hibbs
Mr. G. R. Jasny
Mr. P. R. Vanstrum
Mr. W. J. Wilcox, Jr.
Mr. R. A. Winkel

Subject UCC-ND Environmental
Committee Meeting

The UCC-ND Environmental Committee will convene at 1 p.m., November 8, at the Oak Ridge Gaseous Diffusion Plant.

The following items currently are on the agenda:

1. The activities of the four-plant analytical committee: C. W. Weber
2. The revised draft of the proposed UCC-ND Procedure: G. V. Tucker
3. Problems associated with NO_x and HF stack emissions: Installation Representatives
4. Status of Part B of the discharge permits.
5. Effects of the proposed new AEC Manual Chapter 0513, including best ways to handle reporting requirements and any feedback from our comments: Installation Representatives
6. The summary of five-year pollution projects being prepared for the AEC Construction Division by Engineering. Installation Representatives

If there are any other items you wish included on the agenda, please give advance notice, if possible. A copy of the proposed UCC-ND Procedure is attached.

✓
RGJ:mo

Attachment

This document has been reviewed for classification and has been determined to be UNCLASSIFIED	
<i>Sara H. Welch</i>	
ADC Signature	
4/13/95	
Date	

R. G. Jordan
R. G. Jordan

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William J. Smith 4/28/95
Technical Information Officer Date
Oak Ridge K-25 Site

UNION CARBIDE CORPORATION

NUCLEAR DIVISION

Contract W-7405-eng-26

WASTE MANAGEMENT AND
ENVIRONMENTAL POLLUTION CONTROL
OPERATING PROCEDURES

Second Draft

*Systems & Procedures
October 1971*

2. b. RESPONSIBILITIES: (Continued)

7. Submits periodic analysis and progress reports to the Installation Environmental Control Coordinator.

c. Installation Environmental Control Coordinator:

1. Establishes contaminant limits for each type of effluent to assure total installation compliance with pollution control regulations as referenced in this procedure.
2. Identifies areas where development work is required for pollution abatement or monitoring. N
3. Maintains adequate records on significant effluents and effluent points within the installation. R
4. Coordinates the design, acquisition, and installation of required pollution control equipment with operational and engineering groups.
5. Prepares required periodic analysis reports as required by Management and the AEC.

d. Four-Plant Coordinator: N

1. Serves in a liaison capacity between Installation Coordinators and the AEC and/or other official regulatory bodies.
2. Collects, collates and evaluates four-plant environmental data and coordinates the preparation of reports required by the AEC.

3. APPLICABLE STANDARDS: Airborne or liquid effluents shall be controlled in accordance with the provisions of the AEC Manual Chapter 0524, "Standards for Radiation Protection"; Chapter 0510, "Prevention, Control and Abatement of Air and Water Pollution"; Chapter 0511, "Radioactive Waste Management"; other related requirements in the AEC Manual; the applicable policies and guidance of local state and Federal regulatory bodies including the Environmental Protection Agency (EPA); and UCND Standard Practice Procedures. R

4. DEFINITIONS:

- a. Effluents. (As used in this procedure) refers to liquid and airborne waste streams which are released to the environment and does not include solid wastes nor waste streams which are contained or stored.
- b. Air Pollutants. Refers to dust, fumes, gases, or radioactive emissions discharged to the atmosphere.
- c. Water Pollutants. Refers to thermal, radioactive, or otherwise contaminated liquid or liquid borne solid wastes discharged to the environment. R

WASTE MANAGEMENT AND ENVIRONMENTAL POLLUTION CONTROL

1. MANAGEMENT OBJECTIVE: To exercise a continuous program of surveillance over UCC-ND operations and to establish safeguards against environmental pollution consistent with or above established standards which assure that all installation personnel and the general public are protected against ~~radiation exposure or other~~ health hazards.
2. RESPONSIBILITIES:
 - a. Each Installation Head:
 1. Sees that every potentially significant pollution source under his jurisdiction is identified and its output of gaseous liquid, or solid waste is measured both in terms of concentration and quantity.
 2. Ascertains that immediate remedial action is taken to correct any adverse trends in environmental quality.
 3. Appoints an Installation Environmental Control Coordinator to serve in a liaison capacity between installation divisions and UCC-ND Management.
 - b. Each Responsible Division:
 1. Ascertains that responsible employees are familiar with all established Standard Practice Procedures relating to all aspects of ~~radiation safety~~ and effluent control. N
 2. Identifies all division effluents for which control standards exist or represent recognized hazard potentials (gaseous, liquid or solid) and their release points. R
 3. Monitors ^{keyed with unit's release points} the quantities of materials released at ~~each~~ release point, and ~~establishes a system for routinely reporting quantities~~ of effluents released.
 4. Reviews operating practices to determine if operating procedures can be revised to reduce or control emissions. R
 5. Initiates engineering studies for resolution of the problem where the nature of the effluents and quantities involved indicate a problem that cannot be resolved by revising operating procedures.
 6. Follows up to assure that monitoring and reporting systems are adequate and that action is being taken to cope with actual or potential problems.

4. DEFINITIONS:

- d. Solid Waste Disposals. Refers to burial grounds (radioactive and sanitary landfills), quarry disposal operations, steam plant ash disposals and general waste disposals.

5. EFFLUENT MONITORING:

- a. Purpose. Effluent monitoring is conducted in a manner that provides adequate measurements of the quantity and quality of liquid and air-borne effluents as a basis for:

1. Obtaining data on the quantities and concentrations of pollutants routinely released to the environment, for the purposes of evaluation and control of environmental impact. R
2. Determining compliance with applicable effluent control limits or standards, including self-imposed limits designed to assure compliance with in-plant operating limits, effluent standards or guides, or other environmental standards or guides.
3. Evaluating the adequacy and effectiveness of containment, effluent treatment methods and overall effluent control, including response to inquiries.

- b. Monitoring Locations. Measurements of effluent volume, quality and content are made insofar as is practicable, at the point of final release to the environment. Contributing sources may also be monitored to permit easier identification of the source of significant releases and to facilitate corrective measures at the proper locations. R

In those instances where liquid wastes are released on-site and may be subject to additional on-site modification (e.g., dilution, decay, self-purification, decomposition) effluents are monitored at the point at which public access is no longer positively controlled, i.e., at the physical boundary of the site.

- c. The Type and Frequency of Sampling. Sampling frequency and type are determined by considering the purpose(s) for which the effluent data are being obtained, i.e., evaluation of the effectiveness of waste treatment and control, compliance with applicable limits, and/or collection of effluent data inventory. For example, continuous sampling is warranted where there is wide variation in the concentration or mixture of radionuclides or other potential pollutants in the effluent stream; however, periodic sampling will suffice when the concentrations and the mixture are reasonably constant and there is little likelihood of significant releases. Similarly, proportional sampling may be necessary when effluent flow rates vary widely, whereas a representative grab-sample will suffice for batch discharges. R

Gross radioactivity measurements are appropriate only when specific radionuclide concentrations are very low or when it is impossible to identify or estimate specific radionuclide concentrations by other measures.

5. EFFLUENT MONITORING: (Continued)

- d. Monitoring Data Record-Keeping. The flow rate and the specific pollutant concentration in each effluent stream is collected and recorded in the units in which the standards are expressed. Descriptive information regarding the physical and chemical form of the radionuclide or pollutant, detection limits, points of release, receiving streams and other pertinent descriptive information are included as necessary to interpret the data.

6. CONTROL:

- a. Effluents. Each liquid and gaseous effluent stream is examined with a view toward reducing the quantities of pollutants discharged to the lowest practicable levels. Efficient methods for reducing these quantities in each effluent stream are developed wherever practicable.

Emphasis is placed on those measures which will result in the greatest reduction in the quantity of material being released. Primary attention is given to those materials which tend to persist in the environment and/or are of greater biological significance including all transuranic elements and specific elements such as Strontium 90, Cesium 137, Cobalt 60, etc.

- b. Solid Waste Burial Sites (Radioactive). Burial is defined as a form of warehousing or permanent storage requiring some degree of perpetual care and may be categorized as an effluent source only when seepage or leaks occur.

Each installation maintains a map of burial sites and a record of quantities buried in each trench or grave. Each site is periodically monitored to determine the adequacy of effluent containment.

- c. Disposal of Solid Waste (Other Than Radioactive). Waste disposals must be controlled within the established standards shown in AECM Appendix 0510 and other applicable Federal, State and plant regulations.

7. REPORTING REQUIREMENTS

The Installation Environmental Control Coordinator at each installation will prepare the following reports as required by the AEC. Each report will be submitted to the Four-Plant Coordinator for review and evaluation and final submission to the AEC.

Title of Report

Frequency

"Environmental Concentrations
For Radioactive Materials Near
The _____ Plant"

Semi-annually

7. REPORTING REQUIREMENTS: (Continued)

<u>Title of Report</u>	<u>Frequency</u>
"Annual Progress Report on Air and Water Pollution Abatement Projects"	Annually
"Description of Essential Pollution Control Features on Construction of Any New Facility or Building"	Prior to Solicitation of Bids on Construction of any New Facility or Building Project

Additional reports are prepared as requested by the AEC or as required by UCC-ND Management.

This document has been reviewed for classification and has been determined to be UNCLASSIFIED.

Sara H. Welch
ADC Signature

4/13/95
Date

November 19, 1971

UCC-ND ENVIRONMENTAL COMMITTEE MEETING
NOVEMBER 8, 1971

The UCC-ND Environmental Committee met at Oak Ridge on November 8, with all members present. Guests included N. E. Bolton, H. H. Abee, and D. J. Nelson of ORNL; G. V. Tucker of Central Accounting Services, and C. W. Weber of ORGDP Laboratory Division.

The first item on the agenda was the presentation by Dr. Weber of a status report on the activities of the Four-Plant Study Group for Effluent Analysis. This committee was formed to exchange information with the intent of achieving standardization of analyses among the four plants and economies where possible; analytical constraints imposed by the EPA must, of course, be considered. Since the committee intends to put out a status paper soon, the details will not be reported here; however, it should be noted that three main areas were commented upon:

- a. For some items, EPA reporting requirements seem unnecessarily rigorous and/or impractical. Reporting pH to the second decimal place is one example. Reporting calcium content to the tenth of a part per million is another.
- b. For some items, EPA has not been restrictive enough, possibly through oversight. For example, reporting mercury to one ppm does not seem stringent enough.
- c. The EPA has published a book of allowable analytical methods*. This restrictive set of procedures fails to include some methods employed here, particularly at ORNL, which are considered here to be more accurate and also more economical than those cited by EPA.

The proposed UCC-ND procedure for Waste Management and Environmental Pollution Control, which is being prepared by Mr. Tucker, was discussed. Several suggested changes were accepted. Discussion as to definition of responsibilities ensued, after which it was concluded that local procedural variations could be covered by plant procedural supplements. The revised procedure is to be circulated to Nuclear Division management for comments.

The next item on the agenda was NO_x and HF stack emissions. The key points that emerged from this discussion were:

* *Methods for Chemical Analysis of Water and Wastes - 1971*, EPA Water Quality Office, Analytical Quality Control Laboratory, Cincinnati, Ohio.

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Kevin Stuit / *4/28/95*
Technical Information Officer Date
Oak Ridge K-25 Site

- a. Relatively large amounts of NO_x might be expected from power plant operation with coal or oil, while in addition, substantial amounts of fluoride (possibly as HF) would also be expected with coal.
- b. Tested methods for reduction of NO_x , such as catalytic degradation, are still ineffective below about 300 ppm, while the visible limit is in the range of 100 to 300 ppm.
- c. There is no indication that UCC-ND is out of compliance for HF or NO_x from an environmental standpoint, and concentration or quantity restrictions on effluents have not yet been imposed. Visible NO_x emissions do occur, however, and these may not be considered acceptable by the state.
- d. The greatest quantity of HF discharged (other than possibly by steam plants) can be expected to be that from the Paducah feed plant. As noted in the minutes of the previous meeting, this might be expected to be on the order of 190,000 pounds of fluoride per year (mainly as HF). Methods for elimination of hydrogen fluoride from gas and liquid effluents are available; however, costs are probably significant, and ways of increasing the hydrogen fluoride collection for reuse may require more study.

The status of part B of the discharge permits was discussed, and the situation at the time of the meeting was unclear. Since that time a TWX was received from Headquarters (and copies distributed to the Committee members) which indicated that:

- a. The liquid discharge point can be the point at which the effluent stream leaves the plant boundary.
- b. EPA will use AEC (Federal) standards to evaluate radioactivity in effluents from AEC facilities.
- c. SIC code numbers will not be required for AEC applications.
- d. AEC facilities will not now submit Part B permit application forms and other supplementary data until the above verbal agreements have been formalized.

The effects of the proposed new AEC Manual Chapter 0513 were discussed, particularly with regard to reporting requirements and feedback on our comments. There had been no feedback on the comments. The following policy statement represents the views of the Committee as developed at this meeting and the subsequent task force meeting and explains the scope of the reporting involved.

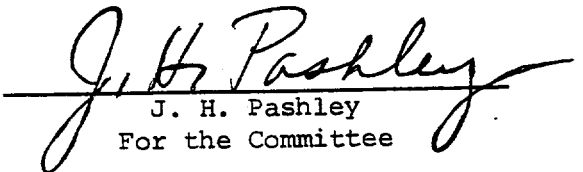
The proposed AECM Chapter 0513, *Effluent and Environmental Monitoring and Reporting*, specifies that the following semiannual reports shall be prepared for all AEC facilities:

1. Effluent Data Report. This report shall consist of (1) a cover sheet listing the title, report period, site, contractor, and address, and (2) a summary providing pertinent descriptive and interpretative information which would serve to explain any facets of the data which are not adequately described by the Effluent Data Form (see attached form).
2. Environmental Monitoring Report. An outline of a typical report is attached.

After comparing the information which will be included in these two reports with the information which is currently being gathered for inclusion in the individual plant Chemical Waste Management Reports, the UCC-ND Environmental Committee concluded the report contents would be similar. Therefore, to avoid duplication of effort, the Committee recommends that the Chemical Waste Management Reports not be prepared.

The five-year pollution project summaries were discussed. Noteworthy were the gross investment requirements which were indicated to be on the order of \$5 million or more per site. The urgency of need for much of this has not been established because federal and state requirements have not been defined with sufficient clarity as yet.

No other business was presented to the meeting.


J. H. Pashley
For the Committee

JHP:ga

Distribution

Mr. R. C. Baker
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Mr. J. M. Case
Mr. F. L. Culler, Jr.
Mr. W. C. Hartman
Mr. R. F. Hibbs
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Mr. R. G. Jordan ✓
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Mr. R. W. Schaich
Mr. I. G. Speas
Mr. P. R. Vanstrum
Mr. W. J. Wilcox, Jr.
Mr. R. A. Winkel

EFFLUENT DATA FORM

☐ Gaseous Effluent
☐ Liquid Effluent
☐ Radioactive
☐ Non-Radioactive

Page _____ of _____

Report Period: _____

Address: _____

Plant: _____

Field Office: _____

Column #	1	2	3	4	5	6	7	8	9	10	11	12	13
		Map I.D. No.	Operation Generating Pollutant	Waste Treatment System	Monitoring System	Receiving Medium	Total Effluent Volume for Rpt. Period	Pollutant Monitored	Number of Samples	Maximum Conc. for Sample Period	Average Conc. for Rpt. Period	Relevant Air or Water Qual.Stds	Quantity Released Dur. Rpt. Period
Effluent Release Point													

(Actual form size to be 8½ x 14 inches)

OUTLINE OF A TYPICAL SEMIANNUAL ENVIRONMENTAL
MONITORING REPORT (Individual Facility Report)

TABLE OF CONTENTS

- I. Title Page (Title, report period, site, contractor, address.)
- II. Introduction (1 - 2 page description of the facility and its primary operations).
- III. Applicable Standards (1 - 3 page discussion of applicable federal; state and local standards as they relate to facility effluents and resultant environmental levels.
 - A. Air Quality Standards
 - B. Water Quality Standards
 - C. Food Standards
 - D. Standards for Flora and Fauna
- IV. Sample Collection and Analysis Summary (1 - 4 page section consisting of one paragraph descriptions of each type of sample collection and analysis).
 - A. Air
 1. Radioactive
 2. Non-radioactive
 - B. Water & Sediments
 1. Radioactive
 2. Non-radioactive
 - C. Food Sources
 1. Radioactive
 2. Non-radioactive
 - D. Fauna, Flora and Soil
 1. Radioactive
 2. Non-radioactive
- V. Monitoring Data (1-3 maps showing sample points followed by Tables of Data. Data tables should include pertinent environmental quality standards for comparison).
 - A. Air Monitoring Data
 - B. Water & Sediments Monitoring Data
 - C. Food Sampling Data
 - D. Fauna, Flora and Soil Sampling Data
- VI. Interpretation and Summary (1 - 3 page interpretation of ambient levels of materials found in the plant environment with discussion as appropriate of unusual incidents or releases). It is necessary that the ambient levels be related to maximum human exposures off-site and to stresses to flora and fauna.. This section is the most

pertinent portion of the report and should scope the potential hazards of any environmental levels above natural background. It should also address any abnormal natural occurrences (such as flooding, forest fires, fish kills, etc.) which could have resulted from or have some impact upon the facility or its operation.

It is required that the first environmental monitoring report written under the new requirements (July 1 - December 31, 1971 report) be coordinated with the Division of Operational Safety prior to finalization and distribution to the public.

- VII. Appendices (This section should include data and/or discussions showing trends or providing other pertinent details not included in the main body of the report on a routine basis.

COMMITTEES

Environmental Monitoring and Protection - Impact Analysis	Safety - OSIA	Industrial Hygiene	Storing, Packaging, and Transportation of Fissile and Radioactive Materials
---	---------------	-----------------------	---

ORNL	E. J. Witkowski	D. M. Davis	N. E. Bolton	R. D. Seagren
ORGDP	W. C. Hartman	N. B. Schultz	N. B. Schultz	E. H. Krieg, Jr.
Y-12	M. Sanders	C. E. Johnson	J. F. Morehead	J. K. Cox
Paducah	R. C. Baker	H. G. Coltharp	C. W. Turok	A. T. Freeman
Production - Engineering	T. Shapiro	B. H. Hale	T. Shapiro	C. E. Oldham
Production - Technical	J. H. Pashley	E. Y. Kimmerly	J. F. Morehead	W. T. Mee

9/1/72

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classification and has been determined to
be UNCLASSIFIED

John A. Zwick
ADC Signature

4/13/95
Date

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to the public by:

John A. Zwick
Technical Information Officer

4/28/95
Date

Oak Ridge K-25 Site

AGENDA

UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING

October 27, 1972

1. Confidence limits on values published in our Environmental Monitoring Reports. How can we resolve this requirement?
2. Need for upgrading monitoring systems - chemical and radiological. We do need a reasonably uniform program.
3. Summary report of plant effluents for management. [Will have a proposed format for review.]
4. Discussion of AEC comments on 1971 monitoring reports and facility surveys.
5. Applicable standards and their use.
6. Calculated dose to members of the local community - Oak Ridge.
7. Objectives for the coming year.

RGJ:ayb

10/19/72

Distribution:

H. H. Abee
R. C. Baker ✓
P. C. Fourney
W. C. Hartman ✓
J. C. Little ✓
J. H. Pashley ✓
M. Sanders
I. G. Speas
E. J. Witkowski .

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<i>Sarah H. Welch</i>	ADC Signature
<i>4/13/95</i>	Date

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Robert J. Smith
Technical Information Officer
Oak Ridge K-25 Site

4/28/95
Date

UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING

October 27, 1972

Distribution

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G. R. Jasny
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J. H. Pashley
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N. B. Schultz
H. G. P. Snyder
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H. E. Trammell
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R. A. Winkel
E. J. Witkowski

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Cheryl J. Zwick 4/28/95
Technical Information Officer Date
Oak Ridge K-25 Site

UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING

October 27, 1972

The UCC-ND Environmental Monitoring and Protection Committee convened on October 27 at 8:30 a.m. Those in attendance were H. H. Abee, R. C. Baker, W. C. Hartman, R. G. Jordan, J. H. Pashley, M. Sanders, I. G. Speas, G. H. Winebarger, E. J. Witkowski; and special guests J. J. Eyre and V. S. Emler, Goodyear Atomic Corporation, Portsmouth Gaseous Diffusion Plant.

AEC Comments on 1971 Monitoring Reports

Copies of AEC Headquarters comments on the 1971 reports which are entitled "Suggestions for Improvements in Environmental Monitoring Reports for the CY 1972 Reporting Period" (copy attached) were distributed to committee members and each item was discussed briefly.

The suggestions are relatively straightforward and only C.1 and D.2 seem to present any problem. Suggestion D.2 is somewhat vague in meaning and attempts will be made to clarify this point through AEC-ORO. Suggestion C.1 will be discussed later in the minutes.

Committee members were reminded that CY 1972 was drawing to a close and that 1972 monitoring reports would be due 90 days following the end of the year. Plant representatives were asked to provide input for the 1972 reports, including information on appropriate items in the list of suggestions for improvement, as expeditiously as possible following the end of the year.

Confidence Limits on Values Published in Our Environmental Monitoring Reports

Item C.1 of the AEC comments suggested that we include confidence limits on mean values, as appropriate, and indicate if the confidence limits do not apply to the accuracy of the entire procedure of sampling and analysis. Problems associated with this type computation, such as unknown or indeterminable sampling errors and the fact that the average value does not represent an average of concentrations drawn from a uniform population, were discussed with Frank Coffman of AEC Headquarters during the AEC Pollution Control Conference without resolution. It was agreed that we would consult with the various plant statistics groups for assistance in resolving this problem.

Portsmouth representatives reported that confidence limits in their 1971 report were based on a total variability formula and agreed to send us some information on the subject.

Need for Upgrading Monitoring Systems - Nonradiological and Radiological

Each plant should review its monitoring programs to determine the need for improvement, particularly in the nonradiological area, and the desirability for achieving a more uniform program on a four-plant basis.

Typical questions that we need to answer and take appropriate action on are:

1. Are we doing adequate monitoring and monitoring all potential problem areas?
2. Are we using similar techniques and instrumentation in each monitoring program?

Summary Report of Plant Effluents for Management

A draft format for reporting monthly off-plant liquid and gaseous effluents (primarily noncompliance and potentially critical items) to management was distributed to committee members for comment. Comments should be returned to the Office of Safety and Environmental Protection by November 10, 1972.

Applicable Standards

The selection of the proper standard to apply to the data reported in the environmental monitoring reports is of vital importance with regard to being in compliance or in noncompliance. Criteria governing the selection of the proper standard include: stream classification; duration and frequency of the sampling period; applicability to mean, maximum, or minimum values; and whether state or federal standards apply. The committee will consider the subject and discuss the appropriate standards to be applied to the 1972 data at the next meeting.

Calculated Dose to Members of the Oak Ridge Community

The AEC response to a question raised by "Inky", an Oak Ridger question and answer column, regarding radioactivity releases from the Oak Ridge plants and the highest environmental exposure to the Oak Ridge population was distributed to committee members as an example of the type question which might be raised by the public in the future (copy attached). The data for the AEC response were supplied by the various plant health physics groups and some suggestions and guidance regarding the AEC response were supplied by the UCC-ND Office of Safety and Environmental Protection.

Battelle-Northwest routinely calculates radiation dose to several populations in the Hanford area. The committee discussed the possibility of similar calculations in Oak Ridge but agreed that such calculations would require the determination or assumption of a number of intake parameters and necessitate more detailed analysis of samples, particularly air samples, which probably would increase the analytical costs by a factor of two. Further consideration should be given to this subject since radiation dose to an individual or to the population is the basic standard rather than the concentration guides currently used for comparison of environmental data.

Objectives for the Coming Year

Each committee member was requested to submit several possible objectives of the committee for the coming year at the next meeting.

Meeting Schedule

The next meeting of the committee will be held in Oak Ridge on Thursday, January 11, 1973, at 9 a.m.


R. G. Jordan

RGJ:HHA:ayb

Attachments

SUGGESTIONS FOR IMPROVEMENTS IN
ENVIRONMENTAL MONITORING REPORTS
FOR THE CY 1972 REPORTING PERIOD

A. The Oak Ridge, Portsmouth and Paducah Reports

1. Expand the description of the site environs to include brief coverage of local climate, topography, hydrology and land utilization.

B. The Oak Ridge and Portsmouth Reports

1. Describe the surrounding populations, including the size and location of villages, towns, and cities, and the size and distribution of rural populations.

C. The Oak Ridge and Paducah Reports

1. Include confidence limits on mean values, as appropriate, and indicate if the confidence limits do not apply to the accuracy of the entire procedure of sampling and analysis.

D. The Oak Ridge Report

1. Include sufficient information on plant operations and resulting waste products that the source of contaminants reported in the environment will be evident. Likewise, other sources (e.g., background, fallout and other facilities) that contribute to contaminants reported in the environment should be identified as appropriate.
2. Provide a clear explanation of the significance of reference environmental standards and guides that do not directly apply to site contributed contaminants by virtue of official Federal, state or regional promulgation.
3. Avoid commitments for corrective actions in instances where guides or standards are exceeded and the AEC has not provided final approval for an abatement project.

Q. Could you please tell us how many curies per year each of the three Oak Ridge AEC plants are currently releasing to the atmosphere? What is the annual average background radiation in central Oak Ridge and just east (downwind) of each of the plants? What and when was the highest environmental exposure of the Oak Ridge population to radiation?

A. In 1971 AEC Oak Ridge facilities released 85,300 curies in airborne emissions, principally as noble gases with very short half-lives, according to information from the AEC. Y-12 and Oak Ridge Gaseous Diffusion Plant emissions totaled less than one curie. The remainder came from Oak Ridge National Laboratory. These discharged expose the general population to less



than one percent of internationally recognized radiation exposure standards.

The AEC says the national background in Oak Ridge has not changed significantly over the years. The average background reading during 1971 was 11.5 micro-roentgens per hours. During the same year the average background measurement east of each plant was 12.6 micro-roentgens per hour for ORNL, 11.6 for Y-12, and 8.5 for K-25. Background levels from 15 monitoring stations in East Tennessee average 9.3.

The highest environmental exposure received by Oak Ridgers during any year came in 1962 due to weapons testing. Increased levels due to fallout were nationwide. The average background in Oak Ridge that year was about 19 micro-roentgens per hour. AEC estimates that the exposure to Oak Ridgers was about 200 milli-roentgens for that as compared with the current environmental exposures of around 100 milli-roentgens.

AGENDA

UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING

January 11, 1973 - 9 a.m.

1. Monthly Monitoring Report to UCC-ND Management.
2. 1972 Environmental Monitoring Reports.
3. 1972 Effluent Monitoring Reports.
4. Proposed revision of SPP D-5-15.
5. Status of Kentucky Suit against UCC, AEC, TVA, EPA, and Corps of Engineers.
6. In-house Environmental Reviews.

RGJ:ayb

12/28/72

Distribution:

H. H. Abee
R. C. Baker
P. C. Fourney
W. C. Hartman
J. C. Little
J. H. Pashley
M. Sanders
I. G. Speas
E. J. Witkowski

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classification and has been determined to
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Sarah H. Welch

ADC Signature

4/13/95

Date

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to the public by:

Arvin J. Quinn
Technical Information Officer
Oak Ridge K-25 Site

4/13/95
Date

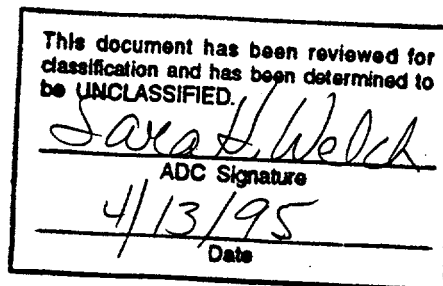


UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING

January 11, 1973

Distribution

H. H. Abee	G. R. Jasny
R. C. Baker	J. C. Little
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A. K. Edwards	H. E. Trammell
P. C. Fourney	P. R. Vanstrum
W. C. Hartman	J. J. Vogt
R. F. Hibbs	W. J. Wilcox, Jr.
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G. W. Horde	E. J. Witkowski



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Quinn D. H. 4/28/95
Technical Information Officer

Date

Oak Ridge K-25 Site

UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING

January 11, 1973

The UCC-ND Environmental Monitoring and Protection Committee convened on January 11 at 9 a.m. Those in attendance were H. H. Abee, R. C. Baker, R. G. Jordan, J. H. Pashley, J. G. Rogers, M. Sanders, I. G. Speas, G. H. Winebarger, and E. J. Witkowski.

Proposed Revision of SPP D-5-15

A draft of the proposed revision of SPP D-5-15 was reviewed. Several changes to the draft were suggested and discussed. Changes which were agreed upon will be incorporated into the draft, and the proposed revision will be distributed to the four plants through the established review channels for comment.

Monthly Monitoring Report to UCC-ND Management

The draft monitoring report circulated to management for comment in December will be established as a routine monthly monitoring report beginning with the January 1973 data. The target date for issuing the January report will be the last of February since some lag time is required for analysis of samples and tabulation of data. Succeeding reports will be issued at monthly intervals thereafter. Installation representatives were asked to include in the reported information comments on actions contemplated or under way in cases where they are not in compliance.

Status of Kentucky Suit against UCC, AEC, TVA, EPA, and Corps of Engineers

There have been no new developments in the case. R. C. Baker reported that all requested information concerning pollution from the Paducah Plant had been supplied to State officials prior to the Kentucky suit, but no application for a permit had been signed since it was understood through the AEC that State permits were not required. According to plant measurements and records, Paducah has not been out of compliance with regard to air pollution as alluded to in the suit.

1972 Effluent Monitoring Reports

Supplemental instructions for preparation of CY 1972 "Radioactive Effluent Data Reports" received from AEC-ORO on January 10 were distributed. In submitting CY 1972 effluent data for release points previously described in the CY 1971 report, it will be necessary to complete only Standard Form 789B. Plant representatives were instructed to use the sample location designations provided in the computer printout of the CY 1971 report, which accompanied the CY 1972 supplemental instructions, for completion of Section O of Form 789B. AEC-ORO requested that metric units for volumes released be used if practical. Standard Form 789A is to be used only if new release points are to be added, previously reported release points are to be deleted, or if previously submitted release point narrative data are to be amended. Four copies of completed report forms should be submitted to the Office of Safety and Environmental Protection by February 26, 1973.

1972 Environmental Monitoring Reports

The 1972 Environmental Monitoring Reports will be prepared in the same format used for the 1971 reports. The AEC suggestions for improvement on the 1971 reports (see attachment to committee meeting minutes dated October 27, 1972) were reviewed, and Oak Ridge representatives were asked to provide the information necessary to implement suggestions "C" and "D" for the Oak Ridge report. Paducah will produce a separate report, as was the case in 1971, and will include information to implement the AEC suggestions. The Office of Safety and Environmental Protection will provide information to cover suggestions "A" and "B" for the Oak Ridge report.

Plant representatives were asked to supply typed copies of the tables and text portions of the report for which they are responsible to the Office of Safety and Environmental Protection by February 15 in order that a rough draft can be assembled for review at the next meeting of the committee.

In-House Review Comments

E. J. Witkowski suggested that the Office of Safety and Environmental Protection provide guidelines to the plants on environmental monitoring, particularly with respect to frequency of sampling, responsibility for sampling and analysis, and possible overlaps. It was agreed that the Oak Ridge monitoring program would be examined to assure its adequacy in the next few months. The results of the examination will be reviewed with the plant representatives and summary comments and/or recommendations will be provided each plant.

R. C. Baker reported that a recent dissolved oxygen survey of the streams at Paducah revealed them to be almost fully saturated. Plans are under way to provide power to stream sampling locations for the installation of continuous monitoring equipment. An additional fluoride air sampling station is being considered between the PN and LN stations.

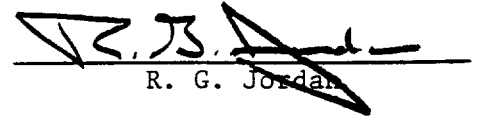
M. Sanders reported that SO² and particulate evaluations on Y-12 steam plant operations will be conducted by American Standard at a contract cost of about \$4400. Sampling will be conducted to evaluate the electrostatic precipitator efficiency while burning low sulfur (0.6%) coal. Y-12 personnel will do the SO² measurements with equipment on loan from TVA and will supply data to American Standard for evaluation and reporting. The project is to start about February 5, 1973.

The major Cr⁶ contributors to the liquid waste stream at Y-12 have been determined to be the west side cooling towers in the 9212 complex. The increased Cr⁶ is the result of erratic manual blowdown operations. The situation should be resolved by the installation of automatic blowdown equipment in the Spring.

J. G. Rogers reported that the HF tank farm project at K-25 will proceed as planned but that it will be necessary to hold up the monitoring project (installation on new monitoring equipment) until after July 1 because of the economic situation.

Meeting Schedule

The next meeting of the committee will be held at 9 a.m. on February 22, 1973, in Oak Ridge.


R. G. Jordan

RGJ:HHA:ayb

COMMITTEES

Environmental Monitoring
and Protection - Impact
Analysis

Safety-OSHA

Industrial
Hygiene

Storing, Packaging, and
Transportation of Fissile
and Radioactive Materials

	E. J. Witkowski	D. M. Davis	N. E. Bolton	E. M. King
ORNL				
ORGDP	W. C. Hartman	N. B. Schultz	N. B. Schultz	J. Dykstra
Y-12	M. Sanders	C. E. Johnson	J. F. Morehead	J. K. Cox
Paducah	R. C. Baker	H. G. Coltharp	C. W. Turok	A. T. Freeman
Production - Engineering	J. C. Little	J. C. Little	J. C. Little	C. E. Oldham
Production - Technical	J. H. Pashley	E. Y. Kimmerly	J. F. Morehead	W. T. Mee

January 1973

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Chris D. Dyer 4/28/95
Technical Information Officer Date
Oak Ridge K-25 Site

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David H. H. H.
ADC Signature
4/13/95
Date

AGENDA

UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING

February 22, 1973 - 9 a.m.
Oak Ridge

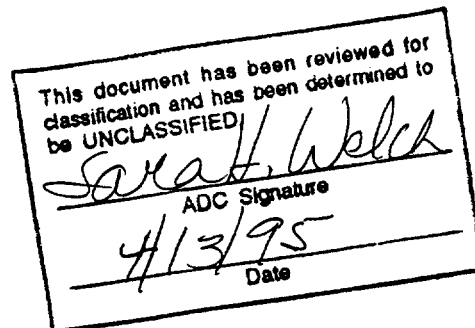
1. Status Report of Cooling Tower Treatment Systems - Each Installation.
2. Status of 1972 Effluent Report - Each Installation.
3. 1972 Environmental Monitoring Reports - Draft Status.
4. Biodegradation of Waste Oil - Y-12 Experience.
5. Items of note - Each Installation.

RGJ:ayb

2/13/73

Distribution:

H. H. Abee
R. C. Baker
P. C. Fourney
W. C. Hartman
J. C. Little
J. H. Pashley
M. Sanders
I. G. Speas
E. J. Witkowski



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Technical Information Officer Date
Oak Ridge K-25 Site *[Signature]*

UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING

February 22, 1973

Distribution

H. H. Abee
R. C. Baker
J. A. Barker
J. C. Barton
F. R. Bruce
J. M. Case
F. L. Culler, Jr.
D. M. Davis
A. K. Edwards
P. C. Fourney
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R. F. Hibbs
C. C. Hopkins
G. W. Horde

G. R. Jasny
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H. E. Trammell
P. R. Vanstrum
J. J. Vogt
W. J. Wilcox, Jr.
R. A. Winkel
E. J. Witkowski

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Sarah Welch
ADC Signature

4/13/95
Date

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Steven Smith
Technical Information Officer
Oak Ridge K-25 Site

4/8/95
Date

(B)

UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING

February 22, 1973

The UCC-ND Environmental Monitoring and Protection Committee convened on February 22 at 9 a.m. Those in attendance were H. H. Abee, W. C. Hartman, R. G. Jordan, B. E. McDougal, E. Roberts, J. G. Rogers, M. Sanders, I. G. Speas, G. H. Winebarger, and E. J. Witkowski.

Status Report on Cooling Tower Treatment Systems

M. Sanders reported that automatic injection equipment controlled by conductivity cells would be installed on all Y-12 cooling towers during 1973 and should result in an increased number of cycles with less blowdown, thus reducing the chromium discharge. Tests using a phosphate inhibitor have been run on four Biology Division air conditioning cooling towers for a period of about one year. Visual inspection gave no indication of heat exchanger tube fouling but definitive corrosion data cannot be obtained without installation of a heat exchanger test unit. Purchase and installation of a test unit are planned in the near future.

E. J. Witkowski reported that a water softening recycle system has been purchased for installation on the HFIR cooling tower which contributes about 50% to the chromium released from ORNL. Limited funding for the Laboratory may cause installation of the equipment to be delayed. Satisfactory operation of the recycle system on the HFIR tower will result in the installation of similar equipment on the other reactor cooling towers in the Laboratory. Operation of the 4500 research area air conditioning cooling tower has been changed from chromate inhibitor to phosphate inhibitor.

W. C. Hartman reported that ORGDP found it necessary at times to blow down water from the recirculating water systems because of some operating difficulties with the current makeshift sidestream softening equipment. Installation of new clarifier and RCW softening equipment within the next year should result in a closed cycle operating system and solve the chromium release problem.

Preliminary results of cooling tower drift studies made by the Environmental Sciences Division of ORNL were also reported. Chromium from cooling tower drift was found to be a factor of 10 less at 1350 meters from the cooling tower than at 15 meters. For the same locations, zinc was estimated to be down by only a factor of three.

B. E. McDougal reported that Paducah plans to use a central chromate destruction and disposal system to cope with the cooling tower blowdown chromium problem. The cost estimate for construction and operation of the facility was not too different from an estimate for a water softening closed cycle system similar to that planned for ORGDP, and the central disposal facility offers the possibility of also handling other types of waste problems. The project is scheduled to be started in FY 1974 with the construction costs to be spread over several years.

1972 Radioactive Effluent Report

The ORNL contribution to the 1972 Radioactive Effluent Report has been received. Paducah's data forms were submitted at this meeting. The ORGDP portion of the report is about 90 percent complete, and Y-12 still has two release points for which data must be completed.

All data forms are to be transmitted to the Office of Safety and Environmental Protection by February 26 so that data can be collated and transmitted to AEC-ORO by March 3, 1973.

Biodegradation of Waste Oil

Following a pilot plant study, Y-12 has gone to a biodegrading process for disposal of the majority of waste oil. The biodegrading process utilizes soil microorganisms to decompose the oil. A two-acre plot has been set aside for this oil disposal process. Plots, 14' x 500', have been laid out and plowed. Waste oil is spread on the plowed plot with a tank truck equipped with a spreading boom and a nitrate nutrient is added to promote microorganism action. Following oil application, the upper six-inch layer of soil is turned monthly, weather permitting, for aeration. Plans call for all Y-12 contaminated oils and cutting fluids to be treated in this manner. Currently, clean motor oil and heavy pump oil are being accumulated in drums for sale. Plans are also under way to investigate cleanup methods for recycling of straight petroleum and hydraulic oils.

The possibility of disposing of the ORGDP and ORNL waste oils at Y-12 using the biodegrading process was discussed. The volume generated annually by these two installations has been estimated at about 13,000 gallons. M. Sanders felt that this could be done without appreciably affecting the Y-12 oil disposal burden. He will investigate the possibility and make recommendations accordingly. In addition, reports containing information on biodegrading test data and processes for oil disposal will be forwarded to Paducah for consideration of this technique as a possible solution to the oil disposal problem there.

1972 Environmental Monitoring Reports

Paducah reported that data for the Paducah 1972 Environmental Monitoring Report have been accumulated and that the revisions to the text of the report were in the process of being written. The report should be drafted, reviewed, and put in final form for publication by March 15.

A draft of the Oak Ridge Environmental Monitoring Report was distributed to the committee for review. A brief explanation of the new parts of the report was presented to the committee. Each member was asked to examine the text and data for clarity and accuracy and submit suggested changes by March 1. Necessary changes will be incorporated into the final draft which should be ready for printing by March 15.

Miscellaneous Items of NoteORNL (E. J. Witkowski)

It is anticipated that there could be some problems with the dissolved oxygen levels in White Oak Creek during the summer. ORNL is planning to install a secondary sewage treatment system. The first proposal by an engineering consultant was not approved by the State; however, a second proposal incorporating an aeration system was approved. The pH problem continues and will continue until a containment and equalization pond is provided for the steam plant ion exchange column regeneration solution.

An incident occurred in December involving abnormal leakage of radioactivity from a trench in the burial ground. With the high rainfall, seepage came to the surface, ran off into the creek, and resulted in an increase in the activity level in the creek by about a factor of three. The activity was primarily strontium and cesium. Containment measures are being investigated.

Paducah (B. E. McDougal)

A new fluoride air monitoring station is being installed between the present PN and 1N sampling stations. This location is near the AEC property line on the north side of the plant. The station will measure the concentration of fluoride essentially at the site boundary. A survey of instrumentation for liquid monitoring is being made in preparation for installation of monitoring stations in the Little and Big Bayous. Information on the proposed ORGDP monitoring stations will be obtained and examined for application at Paducah.

Fluoride scrubbers are being installed on the feed plant.

Y-12 (M. Sanders)

SO₂ measurements were made in February on the Y-12 steam plant gaseous effluent using both normal (avg. 2% sulfur) and low sulfur (avg. 0.7% sulfur) coal. Precipitation efficiency for particulates was also checked during the test. Test results indicated SO₂ emissions averaged 1060 ppm using normal coal with a precipitator efficiency of 98.4%. For low sulfur coal, the SO₂ average was 306 ppm and the precipitator efficiency 94.6%. There was some question about the adequacy of run in time and one boiler will be run on low sulfur coal for about two weeks after which additional tests will be conducted.

Meeting Schedule

The next meeting of the committee will be held in approximately two months, the date being left open pending development of agenda items.


R. G. Jordan

RGJ:HHA:ayb

AGENDA

UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING

November 7, 1973 - 9 a.m.

Paducah

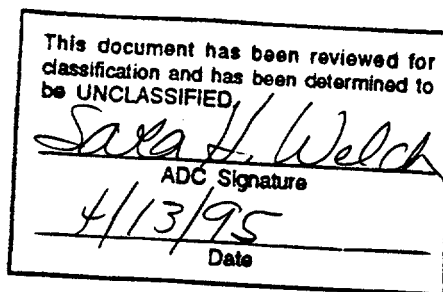
1. EPA Discharge Permits.
2. PCB Protection Measures.
3. PCB Environmental Sampling Program.
4. Optimization of Chemical Monitoring Programs.
5. 1973 Environmental Monitoring and Effluent Reports - Plans and Schedules.
6. Installation Supplements to SPP D-5-15 - Status - Each Installation.
7. Cooling Tower Chromate Problems - Status - Each Installation.
8. Items of Note - Each Installation.

RGJ:ayb

10/26/73

Distribution:

H. H. Abee
R. C. Baker
P. C. Fourney
J. C. Little
J. H. Pashley
M. Sanders
I. G. Speas
S. S. Stief
E. J. Witkowski



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Erin S. Smith 4/28/95
Technical Information Officer Date
Oak Ridge K-25 Site

UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING

November 7, 1973

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J. M. Case	I. G. Speas
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R. F. Hibbs	W. J. Wilcox, Jr.
C. C. Hopkins	R. A. Winkel
G. W. Horde	E. J. Witkowski
G. R. Jasny	

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Sara H. Welch
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Technical Information Officer
Oak Ridge K-25 Site

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UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING

November 7, 1973

The UCC-ND Environmental Monitoring and Protection Committee convened on November 7 at 9 a.m. in Paducah. Those in attendance were H. H. Abee, R. C. Baker, M. C. Conrad, G. R. Dixon, R. G. Jordan, J. G. Rogers, M. Sanders, I. G. Speas, S. S. Stief, and G. H. Winebarger. C. R. Beverly and R. E. Simmons attended part time.

EPA Discharge Permits

H. H. Abee discussed the recent visit to UCC-ND facilities by Mr. Robert Martin, representative of Region IV, EPA - Atlanta. The purpose of Mr. Martin's visit was to review the proposed chromate treatment facility at Paducah and to receive unclassified orientation in UCC-ND operations and monitoring systems with regard to issuing discharge permits for the four plants. Discharge permits probably will be issued within the next six months.

Mr. Martin stated that EPA is responsible for interpreting and applying the law and that EPA philosophy is application of best practical treatment to point sources such as cooling tower blowdown, boiler blowdown, plating shops, wash racks, etc. He indicated that EPA would rely upon the plants to identify all point sources for discharge permit applications and EPA would look at point sources with regard to the need for treatment and application of best practical treatment. EPA would specify discharge limits for point sources in terms of both concentration and average quantity of pollutant released per time period. Dilution to achieve a specified concentration limit is not an acceptable method of treatment. EPA recognizes the problems with the AEC budget process and some nominal time period would be specified in the discharge permit to come into compliance. He indicated that a letter from EPA to AEC giving more specific guidelines in these matters would be transmitted in the near future. Each plant should identify the various point sources and be prepared to obtain data on concentrations of pollutants and flow from these point sources.

PCB Protection Measures

H. H. Abee discussed the recent AEC Environmental Protection Branch appraisal of Oak Ridge facilities with regard to PCB protective measures. The AEC recommended that the following actions be taken to insure minimum risk for the accidental release of PCB fluids to the environment:

1. Inventory plant operation to:
 - a. Insure that PCB compounds are not being used in hydraulic fluids, vacuum pump oil, heat exchangers, etc.
 - b. Document the location of all transformers that contain PCB fluids as to location, fluid capacity, type of PCB compound (Aroclor number) and the need for diking and protection from vehicular traffic.

2. Procedures and instructions are to be prepared and documented to cover the following points on PCB compounds:
 - a. Handling and storage to include precautions for employee protection.
 - b. Disposal of PCB fluids, PCB contaminated soil, rags and other articles.
 - c. Emergency actions in case of an accidental release.
3. Label all PCB transformers with caution statements to advise plant personnel of the contents and to whom to report leaks.

These recommendations should be considered to apply to Paducah as well as the Oak Ridge facilities.

M. Sanders stated that Y-12 has established a PCB committee to inventory the plant and decide upon necessary protective measures required for PCB filled transformers. Y-12 has 92 transformers containing from 100 to 1100 gallons of PCB each, with a total quantity of 53,511 gallons. Transformers which need diking or protective barriers total 51 and the estimated cost of protective measures is in the order of \$160,000.

PCB liquids in storage have been removed from shelves and placed on ground level. Warning and corrective action signs have been installed.

A new electrical maintenance procedure for transformer sampling and handling of PCB has been prepared and is in final draft. Samples of PCB collected from transformers for testing (normally about one pint per transformer annually) are accumulated, following analysis, in a drum for shipment to Monsanto for incineration. Y-12 is considering use of the new oil incinerator to incinerate PCB liquids. Plans for handling of other type PCB contaminated waste materials include the possibility of shipment to Monsanto for disposal.

S. S. Stief reported that ORGDP is developing PCB handling procedures. ORGDP has 99 transformers containing a total quantity of 117,500 gallons of PCB. ORGDP also has a large number of static capacitors containing PCB (approximately 1.5 gal. each) and these are being identified and tabulated. A survey of protective measures required for transformers is in progress. No cost estimate for protective measures is currently available.

R. C. Baker stated that Paducah has 73 PCB filled transformers, 63 of which are large transformers. Evaluation of protective measures required has not been completed and cost estimates of protective measures are not available. No count has yet been made of capacitors containing PCB.

G. R. Dixon reported that ORNL is in the process of surveying PCB filled transformers and required protective measures. No cost estimates of protective measures have been made.

The Office of Safety and Environmental Protection will coordinate development of a uniform policy regarding PCB handling and disposal of waste materials within the four installations.

PCB Environmental Sampling Program

The AEC recently requested that UCC-ND facilities establish a PCB environmental sampling program. A continuing sampling program was not the intent of the request but rather a short-term sampling program to investigate the possibility of unknown PCB releases from UCC-ND facilities and to establish background levels. Where practical, sampling should include water, sediment, fish, and mussels above and below effluent outfalls. The Environmental Sciences Division of ORNL is developing a proposal for sampling in Poplar Creek and the Clinch River. Tentative estimates indicate a two man-week effort with the cost prorated among the appropriate Oak Ridge facilities. Each installation should consider the need for participation in this type program or whether they can perform their own sampling.

Analyses of samples are to be done at one laboratory. M. Sanders reported that the Y-12 laboratory is equipped and ready to perform the required analysis.

If PCB samples collected in the short-term program indicate positive results, additional sampling should be performed on a routine basis.

Optimization of Chemical Monitoring Programs

H. H. Abee discussed the recent AEC Environmental Protection Branch appraisal of Oak Ridge facilities with regard to optimization of chemical monitoring programs. AEC expressed some concern regarding chemical sampling and analyses costs and suggested that environmental and effluent chemical sampling should be consistent with the following policy:

1. Routine sampling and analyses should be limited to those parameters which are related to normal discharges to the environment.
2. All other sampling and analyses should be justified on a cost-benefit basis.
3. These programs should be reevaluated frequently to insure consistency with changing operations and standards.

AEC plans to make this subject a topic of discussion in future annual environmental management appraisals.

G. H. Winebarger briefly discussed the ORGDP centrifuge accident and resulting release of a small quantity of uranium. The AEC investigating team was highly critical of the ORGDP air and water monitoring program in relation to the capability to detect such emergency releases. The significance of such a small release and the ability of monitoring instruments to detect the environmental concentrations which might result from such a small release is debatable.

M. Sanders reported on an accidental release of HCl to East Fork Poplar Creek on October 31. During transfer of HCl from a tank car to the acid storage tank, a transfer line connection came loose releasing 2300 gallons of acid

to the creek. Monitoring instruments on the inlet and outlet of New Hope Pond recorded the incident and showed pH changes of 7.0 to 2.4 at the inlet and 7.0 to 6.0 at the outlet. These data demonstrate the equalization capability of New Hope Pond and the effectiveness of the pH monitoring system.

Environmental Analysis of AEC Operations in Oak Ridge

R. G. Jordan stated that UCC-ND had been requested by the AEC, in a letter from R. J. Hart to R. F. Hibbs, to undertake assembly of data and preparation of a preliminary draft report documenting the environmental analysis of all AEC operations in the Oak Ridge geographical area. Plans to accomplish the project have not been formulated but a contact at each installation should be designated to work on the project. Mr. Jordan will prepare a letter to Installation Heads regarding the project. Mr. Vanstrum has requested participation from all installations and suggested that Installation Heads review and approve input to the project from their respective installations.

1973 Environmental Monitoring and Effluent Reports - Plans and Schedules

H. H. Abee reported that a revised AECM Chapter 0513 probably will be issued in about two months. The revised chapter will be essentially the same as the proposed draft which was issued in April 1973 except that the exemption from dose calculations where offsite levels are less than one percent of the relevant AECM 0524 dose standards will be omitted. Radioactive effluent data requirements to both onsite and offsite environments will be included.

Each installation coordinator was asked to provide liquid and gaseous effluent data as soon as possible following January 1, 1974, in order to provide sufficient time to complete environmental dose calculations. In addition, each coordinator was asked to review the 1972 Environmental Monitoring Report and to provide an updated draft of each installation's contribution to the report as soon as possible following January 1. The draft material should include descriptions of program changes, 1973 data tables, and interpretations of data. The finished Environmental Monitoring Reports must be in AEC Headquarters by April 1, 1974. Draft material should be provided to the Office of Safety and Environmental Protection by February 15 in order for the reports to be assembled, edited, reviewed, and printed by the deadline date.

In calculating environmental radiation doses, AEC has requested that realistic rather than conservative residence times be used to determine the most realistic dose possible to an environmental resident.

Installation Supplements to SPP D-5-15 - Status

The ORNL and Paducah supplements to SPP D-5-15 have been issued. The ORGDP supplement is in draft form to be circulated for comments. The Y-12 Plant supplement is in final draft and will be issued soon.

Cooling Tower Chromate Problems - Status

The Y-12 Plant has formed a steering committee and an ad hoc working committee to expedite a solution to the Y-12 cooling tower chromate problem. The committees have contacted 14 companies who are using nonchromate cooling tower treatment systems to obtain information on their experience to date. Members of the working committee have visited one of the companies contacted, Phillips Petroleum of Sweeny, Texas, to discuss their experience and test data with nonchromate inhibitors. The objective of the committee is to find and initiate a nonchromate treatment system on Y-12 cooling towers.

By January 1, four cooling tower treatment vendors will be provided several cooling towers each on which to test recommended nonchromate treatment systems. Vendors will test systems until October 1, at which time the best system will be selected for use in all cooling towers.

Paducah has a line-item project for a chromate destruction system which is in the hands of an Architect-Engineer for design. Several changes in the initial proposal have been made which include elimination of one clarifier, elimination of lagoon liners, and elimination of diversion ditch flow to the system.

ORGDP has a blowdown recycle system under construction which should be completed in about one year. Plans also include possible change to a nonchromate fire water system and to a nonchromate system on low temperature cooling towers providing fire water supply.

ORNL has installed a lime-soda softening system on the HFIR cooling tower which will be operational in about two weeks. If operational experience is satisfactory, a similar system is planned for the ORR cooling tower.

Items of Note

S. S. Stief stated the ORGDP needs a new classified burial ground. A tentative site has been selected but other alternatives must be evaluated. Some geological information will be required and an environmental assessment must be prepared.

Diking requirements for oil and chemical storage tanks have been determined for ORGDP and the work required will be covered by operating funds.

Plans for improvements to the HF tank farm include replacement of the asphalt containment dike and bottom liner with concrete. The containment area will drain to a sump which will be provided with an automatic valve on the sump drain coupled to an HF detection system. The automatic valve would normally remain open to allow drainage of rainwater from the sump. If HF is detected, the valve would close and the retained HF would be pumped to an empty tank.

Meeting Schedule

The next meeting of the committee will be held in the early part of next year. Current plans are to have a work session on 1973 Environmental Monitoring and Effluent Reports. The date of the meeting will be announced later.


R. G. Jordan

COMMITTEES

Environmental Monitoring
and Protection - Impact
Analysis

Safety-OSHA

Industrial
Hygiene

Storing, Packaging, and
Transportation of Fissile
and Radioactive Materials

ORNL	E. J. Witkowski	D. M. Davis	N. E. Bolton	E. M. King
ORGDP	S. S. Stief	B. I. V. Bailey H. F. Higdon	H. F. Higdon	J. Dykstra
Y-12	M. Sanders	C. E. Johnson	J. F. Morehead	J. K. Cox
Paducah	R. C. Baker	H. G. Coltharp	C. W. Turok	A. T. Freeman
Production - Engineering	J. C. Little	J. C. Little	J. C. Little	C. E. Oldham
Production - Technical	J. H. Pashley	E. Y. Kimmerly	J. F. Morehead	W. T. Mee

November 1973

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DATE 4/13/95
Signature: *Sara H. Welch*
Title: *4/13/95*

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Chen-Li Zeng 4/28/95
Technical Information Officer Date
Oak Ridge K-25 Site

AGENDA

UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING

February 13, 1974 - 9 a.m.
Oak Ridge

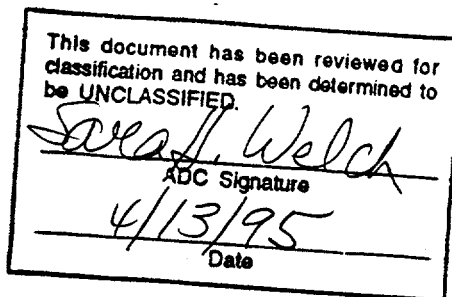
1. Revised AECM Chapter 0513 Implementation.
2. 1973 Effluent Reports - Status.
3. 1973 Environmental Monitoring Reports - Plans.
4. Actions Taken or Planned as a Result of 1973 Environmental Management Appraisals - Each Installation.
5. Pollution Control for Effluents which do not Violate Existing Standards.
6. HF Monitoring Review - Each Installation.
7. Items of Note - Each Installation.

RGJ:ayb

1/23/74

Distribution:

H. H. Abee
R. C. Baker
P. C. Fournery
J. C. Little
J. H. Pashley
M. Sanders
I. G. Speas
S. S. Stief
E. J. Witkowski



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Technical Information Office Date
Oak Ridge K-25 Site

UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING

February 13, 1974

Distribution

H. H. Abee	C. J. Parks
R. C. Baker	J. H. Pashley
J. A. Barker	H. Postma
J. C. Barton	M. E. Ramsey
F. R. Bruce	M. Sanders
J. M. Case	H. G. P. Snyder
F. L. Culler, Jr.	I. G. Speas
D. M. Davis	S. S. Stief
A. K. Edwards	H. E. Trammell
P. C. Fournery	P. R. Vanstrum
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C. C. Hopkins	W. J. Wilcox, Jr.
G. W. Horde	R. A. Winkel
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J. C. Little	

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Technical Information Officer

Oak Ridge K-25 Site

Date

UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING

February 13, 1974

The UCC-ND Environmental Monitoring and Protection Committee convened on February 13 at 9 a.m. Those in attendance were H. H. Abee, R. C. Baker, M. C. Conrad, G. R. Dixon, R. G. Jordan, J. C. Little, J. H. Pashley, E. Roberts, M. Sanders, I. G. Speas, S. S. Stief, and G. H. Winebarger. V. S. Emler of Goodyear Atomic Corporation attended part time as a guest.

Revised AECM Chapter 0513 Implementation

H. H. Abee reviewed the major changes in revised AECM Chapter 0513 which require implementation in the CY 1973 Environmental Monitoring and Effluent Reports. Revised AECM 0513 requires monitoring of onsite discharges as well as effluents leaving the plant site. Onsite discharges are defined as airborne and liquid wastes discharged onsite to treatment and disposal systems, e.g., sewage lagoons, retention basins, cribs, etc; or released in such a manner that there is additional retention, decay, or dilution of radioactivity before release to the environment. A strict interpretation of this provision could result in a significant increase in monitoring costs. The AEC Environmental Pollution Branch has agreed to review potential onsite discharges and provide an interpretation as to what would be included in this requirement. Each installation should provide the UCC-ND Office of Safety and Environmental Protection with a list of potential onsite discharge points for AEC review. New computer forms for reporting onsite discharges are being issued and reports will be due in AEC Headquarters 90 days following receipt of the forms.

For preparation of the Environmental Monitoring Reports, the provision that dose calculations are not required where the anticipated environmental radiation dose is less than one percent of the AECM 0524 standard has been deleted from the final draft of AECM 0513. Emphasis is placed on making realistic dose assessments for all cases rather than conservative dose assessments. By agreement with AEC, Paducah will not be required to do a 50-mile man-rem dose calculation.

In a letter from W. H. Travis to R. G. Jordan, dated February 6, we were informed that the AEC has adopted a policy that data on the total curies of radioactivity released in effluents from AEC facilities should be included in the annual environmental monitoring reports published by AEC sites as required by AECM 0513. The letter directs that we include these data in the CY 1973 Environmental Monitoring Reports. These data need not be individual effluent data but rather total curie quantities released in air and water by individual radionuclides where required for clarity.

The date for transmittal of Environmental Monitoring Reports to AEC Headquarters has been changed from April 1 to May 1.

Two general comments have been received from AEC Headquarters regarding CY 1972 Environmental Monitoring Reports as follows:

1. A discussion is warranted regarding compliance with the various provisions of the Clean Air Act, the Federal Water Pollution Control Act and other applicable Federal and State standards (e.g., stationary sources standards)

Examples of topics which deserve mention are compliance with sewage treatment standards and open-burning, incineration and steam plant emission standards. In short, the documents should contain discussion of each of the major provisions of the applicable environmental protection standards along with statements demonstrating site compliance with those standards.

2. Several of the maps and figures should be revised or supplemented to provide a more meaningful description of the site. For example, Figures 2 and 4 in the Fernald report do not appear to be to scale and scales of distance are not provided. Many significant plant and environmental features are missing, such as the location of Paddy's Run Creek and the Chemical Waste Pits.

Pertinent information relative to these comments should be incorporated, as appropriate, in the 1973 Environmental Monitoring Reports.

1973 Effluent Reports - Status

Paducah and ORGDP effluent data forms have been completed and forwarded to the Office of Safety and Environmental Protection. ORNL and Y-12 reported that data forms are in process and should be completed within another week. The completed effluent data report is due in AEC Headquarters on April 1, 1974.

1973 Environmental Monitoring Reports - Plans

Each environmental coordinator was asked to review the 1972 Environmental Monitoring Report and to provide an updated draft of each installation's contribution to the report as soon as possible. The draft material should include 1973 data tables, requirements for map revisions, descriptions of program changes, and interpretation of data. The draft material should be transmitted to the Office of Safety and Environmental Protection no later than March 15 in order for reports to be assembled, edited, reviewed, and printed by the deadline date of May 1.

Actions Taken or Planned as a Result of 1973 Environmental Management Appraisals

M. Sanders reported that the Y-12 environmental sampling and analysis program has been reviewed and revised in accordance with AEC recommended criteria. The survey of PCB-filled transformers has been completed. Seven typical diking plans have been developed. Fifty-one transformers will require dikes and the appropriate diking plan will be used in each case based on location and potential for environmental contamination in case of leaks. It is estimated that the required diking will cost between \$80,000 and \$100,000. A task force was formed to evaluate nonchromate systems for cooling tower treatment as a means of reducing chromate discharges to East Fork Poplar Creek. Four cooling tower treatment vendors have been contacted about installing their recommended nonchromate systems on Y-12 cooling towers. A total of 22 cooling towers divided into four groups will be used to test the different cooling tower treatment systems. Tests will be conducted until October at which time one system will be chosen for installation in all towers. A portable electrolysis treatment unit (cost ~ \$25,000) has been ordered to treat three towers not being used in the vendor test program.

G. R. Dixon reported that ORNL is making an evaluation of the capability for detecting leaks from storage tanks in the ILW system. This includes an evaluation of the present tank liquid level indicators and an investigation of new type liquid level instrumentation. There is some doubt that significant leaks can be detected promptly by this method since a fraction of an inch change in liquid level in one of the Gunit tanks represents hundreds of gallons of liquid. Continuous monitoring of tank dry wells is being considered. AEC had expressed some concern during the appraisal that a leak from a tank might go straight down rather than follow the dry well drainage system. An ORNL hydrologist has agreed this might be a possibility and recommended the installation of a deep monitoring well in the center of the tank farm which could be pumped, thus creating a zone of depression in the water table to intercept such leaks. This recommendation is being considered even though it would mean handling large volumes of water from the pumping operation.

A procedure is being prepared for training and retraining operators in leak detection.

The sampling and analysis program has been reviewed and revised in accordance with AEC criteria.

R. C. Baker reported that Paducah is preparing procedures for PCB handling and instituting corrective measures to prevent PCB from entering the environment should leaks occur in PCB-filled transformers.

Some difficulty has been experienced in removing asphalt from the HF tank farm dikes. Paducah likes the ORGDP idea of a sump in the HF tank farm diked area for collection of HF leaks and is investigating ways to implement this approach. No plans have been made for installation of an oil spray on HF leaks to reduce losses by volatilization.

A study indicated that the use of a nonchromate inhibitor in the fire water system was not acceptable. Procedures have been changed to limit chromate discharges during fire water tests. This includes reducing the chromate concentration in the fire water system to about 10 ppm during test periods. Caustic will be added to the rainwater which collects in the solid waste storage pit to precipitate uranium. This will reduce uranium discharges from the pit since rainwater collection normally exceeds evaporation and must be pumped from the pit to prevent overflow. Plans call for eventually covering the pit with earth.

Bag failures are still occurring periodically in the metals plant and the feed plant, and difficulty is being experienced in detecting failures with the present smoke detection system.

S. S. Stief reported that a procedure had been prepared for shipping a transformer containing PCB to General Electric for repair. The shipment will be made on a rail car with the transformer sitting in a drip pan containing absorbing material to contain leaks should they occur in transit. The procedure includes tie-down specifications, leak notification criteria, etc. This shipment will serve as a trial run for shipment of transformers for uprating in the CUP. A survey has been made of diking requirements for PCB-filled transformers but means of financing the diking has not been determined.

Plans have been formulated for installation of a concrete pad and dike with a sump under the HF tank farm. The concrete pad will be coated and a pump installed in the sump to transfer any HF leakage to a spare tank. The environmental sampling and analysis program has been reviewed, but no changes are planned at the present time.

Oil and hazardous chemical storage tanks may not be diked individually but leaks may be controlled by providing drainage to a common interceptor system and dike.

V. S. Emler reported that the Portsmouth appraisal was similar in content to the UCC-ND facility appraisals.

Pollution Control for Effluents which do not Violate Existing Standards

H. H. Abbe discussed a memorandum received from AEC-ORO which stated that in the opinion of the Office of Chief Counsel we are not required under the law to treat new sources where effluents do not violate existing standards. This does not preclude the installation of pollution control equipment for such effluents where they may add to existing problems or approach existing standards, but means that justification for installation must be based on criteria other than a violation of existing standards.

HF Monitoring Review

R. C. Baker reviewed the Paducah HF monitoring system which consists of four continuous sampling stations on the plant fence line, five at approximately one mile from the plant, and one at the north boundary of the AEC property. Sampling equipment includes a pump pulling air at 0.3 cfm through a 2-liter conical bubbler partially filled with glass beads. A membrane filter is in the sampling train ahead of the bubbler for removal of particulates for radioactive evaluation. Some errors were introduced into the sampling train in the earlier years due to HF absorption on the fritted glass backup plate of the filter holder. For the past two years, a Teflon filter holder has been used with better results. Mr. Baker stated that the Paducah Laboratory Group has developed and tested a potassium carbonate-treated paper for HF sampling which appears to have a number of advantages over the bubbler system. Paducah plans to change to the treated paper samplers in the near future if preliminary field tests prove satisfactory. Analysis of bubbler samples for HF is done by specific ion electrode.

G. H. Winebarger reviewed the ORGDP HF monitoring system which consists of four perimeter stations and two stations approximately five miles from the plant in the prevailing wind directions. A bubbler sampler similar to the Paducah sampler is used. Air is sampled at a rate of 0.66 cfm through the bubbler which contains 500 ml. of solution. There is no filter ahead of the bubbler. Samples are routinely collected at each station for a 24-hour period one day per week. A new sampling station has been installed recently near the plant in the prevailing wind direction to study the plant's HF contribution to the environment in relation to the existing background from other sources. The station contains a wind direction indicator which activates the sampler only when the wind is blowing from the plant toward the sampler.

E. Roberts reviewed the Y-12 HF monitoring program which consists of three stations, one in the center of the plant, and one at each end of the plant. A bubbler sampler similar to the Paducah sampler containing 1 liter of solution is used to collect a 24-hour sample once each month. The flow rate through the sampler is 1 cfm. Analytical results of the samples have been questionable and are being investigated.

ORNL does not monitor for HF since they have no HF problem.

All facilities should give consideration to using a continuous HF sampling system and, pending the results of Paducah field test experience, to changing to treated paper samplers.

Items of Note

S. S. Stief discussed the AEC investigating committee recommendations which resulted from the investigation of the centrifuge accident in which 20 to 50 grams of UF_6 were released. Mr. Stief feels that criteria for monitoring should be developed between UCC-ND and the AEC, particularly with regard to emergency procedures and capabilities.

H. H. Abee distributed a brochure on Chem-Trol Pollution Services, Inc., a private waste disposal company, and suggested this company as a possible recipient for PCB-contaminated solid and noncombustible wastes. S. S. Stief suggested that PCB wastes be pooled from the Oak Ridge facilities for consolidated shipment to an offsite disposal firm.

H. H. Abee stated that forms and instructions for preparing the inventory of quantities and locations of radioactivity in the environment on or near AEC sites would be distributed in the near future.

M. Sanders reported that a new gate has been installed on the outlet of New Hope Pond. Closing the gate will provide a hold-up time of 10-1/2 hours for effluents in New Hope Pond under normal flow conditions.

R. G. Jordan requested that each installation again review their operations to assure that any possible transuranic release points are known.

H. H. Abee stated that an agenda item at all future meetings of the committee will be a status report on pollution control projects.

Meeting Schedule

The next meeting of the committee will be held in April, the date being left open pending development of agenda items.


R. G. Jordan

AGENDA

UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING

July 18, 1974 - 1 p.m.

Paducah

1. Transuranic Release Potential and Environmental Evaluation - Each Installation.
2. Environmental Data on PCB's - Each Installation.
3. Monitoring Program - Recommendations - H. H. Abee.
4. HF Monitoring - Status - Each Installation.
5. Laboratory Quality Assurance and Minimum Detectable Limits - H. H. Abee.
6. Pollution Control Projects - Status - Each Installation.
7. Items of Note - Each Installation.

RGJ:ayb

6/28/74

Distribution:

H. H. Abee	H. Postma
R. C. Baker	M. Sanders
J. M. Case	I. G. Speas
P. C. Fourney	S. S. Stief
C. C. Hopkins	P. R. Vanstrum
J. C. Little	R. A. Winkel
C. J. Parks	E. J. Witkowski
J. H. Pashley	

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Quinn D. Smith 4/28/95
Technical Information Officer

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Oak Ridge K-25 Site

UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING

July 18, 1974

Distribution

H. H. Abee	C. J. Parks
R. C. Baker	J. H. Pashley
J. A. Barker	H. Postma
J. C. Barton	M. E. Ramsey
F. R. Bruce	M. Sanders
J. M. Case	H. G. P. Snyder
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Technical Information Officer
Oak Ridge K-25 Site

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UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING

July 18, 1974

The UCC-ND Environmental Monitoring and Protection Committee convened on July 18, 1 p.m., at the Paducah Gaseous Diffusion Plant. Those in attendance were H. H. Abee, R. C. Baker, M. C. Conrad, D. M. Davis, R. G. Jordan, J. C. Little, J. G. Rogers, M. Sanders, I. G. Speas, and S. S. Stief.

Transuranic Release Potential and Environmental Evaluation

R. C. Baker reviewed the transuranic situation at Paducah. Transuranics are associated with the processing of reactor tails as a trace contaminant in the tails received. Potentials for release are associated with the ash from UF_6 manufacturing, cylinder washing, and decontamination. Material balances have indicated that some small amount of transuranics may have been released to the environment over the last 20 years; however, releases were such that concentrations in effluents were well below AECM 0524 concentration guides. The material balance arrived at a quantity of material unaccounted for; the total quantity released is not known. No material has been released since July 1973, at which time, recovery of uranium from ash was stopped and the ash was placed into storage. A sampling plan has been developed and is now in effect to examine the environment for transuranics. The sediment in the Bayous is being sampled at selected locations, one turtle and one muskrat have been collected along the Bayous for analysis (others will be collected if possible), grass along the flood plain of the Bayous will be collected, and mussels will be collected in the Ohio River when the water recedes from flood levels. Mr. Baker stated that the previous cost estimate for conducting the environmental investigation (approximately \$5000) now appears to be too low.

S. S. Stief stated that transuranic releases from the ORGDP probably would have been from cylinder washings. In 1973, sludge was dredged from the K-1407B holding pond and pumped to a retention basin. Water associated with the dredging operations flowed from the retention basin via a ditch to the creek. Sludge in the retention basin has been sampled and sediment samples have been collected along the ditch which carried the surplus water from the retention basin to the creek. Positive indications of transuranics were found in the sludge from the retention basin but none were found in the drainage ditch indicating no carry-over to the creek. Additional sampling is being done to provide more complete data on the transuranic content of the sludge in the retention basin.

M. Sanders reported that samples have been collected in New Hope Pond, S-3 Ponds, and Bear Creek and analyzed for transuranics. No indication of transuranics has been found. Any transuranics would be associated with processing SRO material, and the process chemistry is such that transuranics in the material would stay with the product which is returned to the feed solution provider.

D. M. Davis stated that ORNL plans to do more sampling of the environment for transuranics.

Environmental Data on PCB's

J. G. Rogers reported that sediment samples collected from the retention basin at ORGDP had a maximum of 25 ppb PCB's and that sediment collected from Poplar Creek ranged from 8 ppb upstream from the plant to 15 ppb maximum downstream. The material identified was Oraclor 1248 which is different from that used in transformers (Oraclor 1260). The source of the PCB's is not presently known.

R. C. Baker stated that preliminary results on Paducah samples indicated levels of < 1 ppm. Samples are being analyzed again by a more sensitive method to define more precisely the concentration levels.

M. Sanders provided data on sediment and water collected from New Hope Pond at the Y-12 Plant. No PCB's were found in the water. Concentrations in the sediment averaged about 37 ppm.

The ORNL program is just getting under way and no data are currently available.

Each installation was requested to tabulate their PCB data with appropriate qualifications and comments and send the data to Mr. Jordan for compilation and transmittal to the AEC.

Monitoring Program - Recommendations

H. H. Abee stated that the current emphasis on environmental pollution makes it necessary to consider the political and public relations aspects of environmental and effluent monitoring as well as the technical aspects. It is becoming increasingly more apparent that effluent or environmental concentrations which may be considered insignificant from a technical point of view may have significant connotations from a political or public relations point of view. Therefore, each installation should review its monitoring program in relation to data gaps which could conceivably result in political significance and consider uprating the program to provide data in these areas. In addition, the program review should include an examination of sampling and analytical parameters currently used to assure that the most meaningful data regarding effluent quantities and environmental concentrations are being collected. The following recommendations were presented for consideration during review and uprating of programs:

1. Proportional or continuous water samples should be collected in effluent and receiving streams rather than grab samples unless analytical considerations, such as analysis immediately after sample collection, dictate the use of a grab sample technique.
2. Good flow measurements should be maintained in effluent streams in order that total load (concentration times flow) can be determined with confidence.
3. Samples should be analyzed for chemical pollutants by EPA-approved procedures.
4. Nuclide specific analyses for radioactive materials should be made rather than analysis by gross counting techniques. Compositing of samples may be required to provide sufficient radioactivity for statistically accurate measurement. This applies to both air and water.

5. Bottom sediments from several appropriate locations in the receiving streams should be sampled and analyzed for appropriate pollutants on an annual basis to evaluate potential buildup resulting from plant releases.
6. Fish in the receiving streams should be sampled and analyzed for appropriate pollutants (particularly radioactivity) on a periodic basis. Data should include species and part of fish analyzed.
7. The adequacy of meteorological and demographic data for use in diffusion and dose calculations should be examined. Consideration should be given to installing meteorological instrumentation on site if present available data are deemed inadequate.
8. Flora and fauna which may be sensitive to airborne effluents from plant operations should be sampled and analyzed on a periodic basis.
9. The adequacy of soil sampling programs should be examined, particularly with regard to sampling locations, sampling techniques, and background data.
10. The adequacy of background data for various pollutants should be examined.

HF Monitoring - Status

R. C. Baker reported that Paducah changed from bubbler samplers to potassium carbonate-treated filter paper as a means for monitoring airborne HF about the second week in February 1974. The filter paper technique is much easier and more convenient to use than the bubbler samplers. Data collected by this method are consistent and appear comparable to previous bubbler data with regard to variations with time and meteorological conditions. Samples are collected continuously for one week (86 m³ of air sampled) and papers are changed and analyzed for HF using a specific ion electrode technique.

M. Sanders stated that the Y-12 Plant has three stations, one at each end of the plant and one in the middle of the plant, for sampling HF. Treated paper samplers are being used and samples are collected continuously for one week each month during the period that fluid bed process activity is at a peak. Data obtained using this technique appear much more reliable than data previously obtained using bubbler samplers.

ORGDP is still using bubbler samplers and sample one 24-hour period every eight days. Change to a paper sampler technique with continuous sampling is under consideration.

Laboratory Quality Assurance and Minimum Detectable Limits

H. H. Abee stated that even though the analytical laboratories maintain quality control programs, it would be appropriate from a quality assurance standpoint for laboratories to exchange samples for intercomparison of laboratory analysis techniques and resulting data. In addition, some effort should be directed

toward establishing uniform minimum detectable levels throughout the Nuclear Division laboratories for common, specific analytical procedures used in environmental analyses. Different minimum detectable levels reported by the laboratories of the three Oak Ridge facilities create reporting problems in preparing an integrated Environmental Monitoring Report for the Oak Ridge Facilities in accordance with the requirements of AECM 0513. Mr. Jordan will prepare a letter to the four-plant Analytical Laboratory Committee requesting a review of this problem, particularly with regard to selected significant pollutants in installation effluents.

Mr. Abee suggested that each installation pollution control group examine analytical data for significant changes or anomalies immediately after their receipt from the laboratory in order that errors or significant events can be investigated. In addition, the laboratory should be asked to retain portions of each sample analyzed so that follow-up analyses can be performed if data appear questionable.

Pollution Control Projects - Status

Each installation presented a brief review of pollution control projects which are budgeted or under way. Summaries of the status of pollution control projects at each installation are attached.

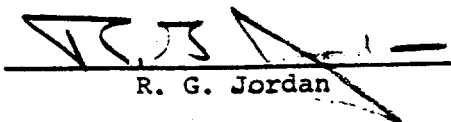
Items of Note

H. H. Abee distributed copies of the EPA effluent standards for discharges from electroplating facilities to the Environmental Coordinators and asked for comments regarding applicability and probable treatment requirements by July 31.

Mr. Jordan stated that any significant accidental releases should be reported directly to the AEC and to his office by the Installation Head or the Environmental Coordinator.

Meeting Schedule

The next meeting of the committee will be held in October, the date being left open pending development of agenda items.


R. G. Jordan

RGJ:HHA:ayb

Attachment

POLLUTION CONTROL PROJECTS - Y-12

Oil Abatement

Building - 9215
Process - 3rd Mill Pit
Status - Engineering
Funding - FY 1976, 50K

Oil Recycle

Building - 9404-16
Process - Plantwide
Status - Pilot Plant
Funding - FY 1976 Equipment

Eliminate Chromium in Poplar Creek

Building - All Cooling Towers
Process - Blowdown from Towers
Status - Complete - Testing Nonchromate Treatment Systems
Funding - Expense

Dissolved Oxygen East Fork Poplar Creek

Area - New Hope Pond
Status - Aerator will be installed on surface of pond when ORGDP finishes using equipment.
Cost - Equipment 5K

Tank Diking

Area - Plantwide Bulk Chemical Storage
Status - Engineering
Funding - FY 1975, 25K; and FY 1976, 80K

Diking Transformers Containing PCB's

Area - Plantwide
Status - Complete
Funding - FY 1974 Expense, 49K

HF Abatement

Buildings - 9212 and 9206
Status - Engineering Complete
Funding - FY 1975 and FY 1976, 36K

Denitrification Plant

Area - Area 5 Complex
Status - Under Construction
Funding - FY 1974, 1.700K

STATUS OF K-25 POLLUTION CONTROL PROJECTS

WATER PROJECTS

1. Blow-Down Recycle

The cooling tower blow-down from the recirculating water system will be eliminated through piping changes to resoften and recycle the blow-down stream containing chromates. The major addition involves the installation of a 27-ft diameter clarifier to process a maximum of 1.5 million gallons of blow-down water per day. Engineering design is complete; however, construction has not started since the clarifier has not yet arrived. The project involves \$290,000, and construction is scheduled to be complete in December, 1974.

2. Plant Liquid Effluent Pollution Control

The Engineering drawings for this project are in process of being reviewed. The K-25 portion of the three-plant project involves \$1.1 million. Funds in the amount of \$8 million have been approved for the project; however, \$8.9 million will be required as per current estimates. Approval of the additional money is pending. Presently, the total project is scheduled to be complete in November, 1975.

3. Cooling Water Line Modifications - K-27 Area

Three synchronous condensers located in the K-27 switchyard will be placed in continuous service to maintain a favorable power factor at increased loads. The cooling water for the condensers is supplied from B-loop and returned to C-loop as make-up water. Since the load on C-loop will not increase, there will be only a small need for make-up water and the cooling water discharge from the synchronous condensers will then result in a C-loop overflow of approximately 1,000 gpm to Poplar Creek. By modifying the cooling water system such that the supply and return will be connected to C-loop, blow-down to Poplar Creek can be eliminated. Engineering design for piping modifications is under way. The project will cost \$41,000, and construction is scheduled to be complete in September, 1974.

4. K-1232 Facility

Construction of the \$4.25 million K-1232 waste treatment facility is complete. Start-up of the facility is planned within approximately two weeks. Due to automatic control problems, the facility was not operational when K-1231 began production on approximately July 1, 1974.

5. Steam Plant Blow-Down Neutralization

With the installation of the new oil-fired boiler, a new water treatment system has been installed at the steam plant. The new system will produce an acidic waste which must be neutralized before entering the K-1407-B holding pond. Lime slurry feed equipment has been installed in an existing concrete pit south of the steam plant. Construction is complete; however, since the oil-fired boiler is not yet in operation, the new neutralization system has not been started up. The project involves approximately \$30,000.

6. K-1420 Rinse Line Modifications

Design is complete on piping modifications to aid in recycling rinse solutions from the decontamination area to the uranium recovery area at K-1420. The estimated cost for the project is \$100,000, and construction is scheduled to be complete by December 1974.

7. Poplar Creek Monitoring Stations

Monitoring stations have been installed, both upstream and downstream of K-25 on Poplar Creek. This project also involved additional modifications at major effluent points within the plant area. Rust Engineering has completed construction, and UCC-ND personnel are currently making the final electrical connections necessary to operate the new instrumentation. The project cost was \$130,000.

8. Containment of Oil and Hazardous Substances

A preliminary proposal is scheduled to be written by September 1 to describe the plans for containing possible spills of oil or other hazardous substances throughout the K-25 area. A total of \$365,000 has been budgeted as a FY 1975 GPP to cover the installation of dikes and other diversionary structures which will be required to prohibit accidental spills from entering Poplar Creek. The project presently is scheduled to be complete by December 1975.

9. Removal of Chromates from Fire Water System

Engineering design is under way to provide the necessary piping changes to allow a phosphonate corrosion inhibitor to be utilized in the fire water system at K-25 instead of the presently used chromate corrosion inhibitor. It is estimated that the project will cost \$46,000, and completion is scheduled in December 1975.

10. Uprate Composite Samplers

Additional flow instrumentation will be provided at the major effluent points leaving the K-25 area as part of a FY 1976 GPP which is estimated to cost \$75,000. The proposed project will provide continuous flow measuring instrumentation and a facility shelter for the sampling equipment to prevent freezing at each major effluent location. The present composite sampler system is requiring increased maintenance and does not perform adequately during freezing weather.

AIR PROJECTS

1. K-1413 Scrubber

A scrubber will be installed in the K-1413 building for the purpose of removing halogens before the gas stream is discharged to the atmosphere. Engineering design is complete and construction costs are being negotiated with Rust Engineering. The necessary equipment has arrived, and construction by Rust is scheduled to be complete in September 1974.

2. K-1401 Scrubber

The K-1401 scrubber system is installed and in the process of being checked out. The scrubber utilizes a KOH solution to remove fluorides from the K-1401 stabilization stand system. The project cost \$75,000.

3. K-402-9 Purge Cascade Scrubber

Engineering design is presently under way to utilize a KOH scrubber in the new purge cascade which will be installed in the K-402-9 building. This scrubber will remove fluorides from the effluent which will be discharged from the new purge cascade. The scrubber system is estimated to cost approximately \$75,000.

4. UF₆ Containment - K-1423

Preliminary planning is under way to install equipment at K-1423 for the purpose of containing accidental releases which might occur in the K-1423 toll enrichment facility. A total of \$100,000 is budgeted for installation of this equipment.

5. Steam Plant Upgrading

Plans are being formulated to bring emissions from the steam plant into compliance with regulations. This is a FY 1976 line item. The changes to be made have not yet been determined; however, the plant is out of compliance with State regulations whenever coal is burned, and the State has threatened to file suit unless a compliance plan is submitted.

ENGINEERING STUDIES

Currently, the Environmental Protection Group has two ESO's in Engineering for conceptual work. One is to determine the changes required to the storm sewer system to drain all surface run-off from the K-25 site through one of the lagoons. The other ESO is to determine methods of reducing HF losses in the event of a large release at the HF tank farm.

INTRA-LABORATORY CORRESPONDENCE

OAK RIDGE NATIONAL LABORATORY

POLLUTION CONTROL PROJECTS - ORNL

1. Two ponds for controlling pH in White Oak Creek.

This project, for \$90,000, is awaiting AEC approval of funds. The money was promised by FY1975.

2. Chromates

The operation of the 4500 Area cooling tower and most of the small cooling towers has been changed to use phosphonates instead of chromates. The HFIR cooling tower blowdown has been reduced by 70% by using the lime-soda-ash treatment. The chemistry of the HFIR cooling tower process is being modified in an effort to completely eliminate the blowdown.

The only area where the chromate discharge is significant and nothing has been done is at the ORR and BSR cooling towers. The work is being held up here to see what the outcome will be on the electrolytic process at Y-12.

3. Bulk Chemical Storage

Work orders have been issued to modify drainage at all tanks where potential releases of significant amounts of chemicals are possible. Where the modifications were not practical, the tanks were taken out of service.

4. Oil Pollution

(a) SPCC plan written. Engineers are now working on devising a method for anchoring sorbent booms at White Oak Dam.

(b) There are only two above-ground tanks that require diking; one is the 70,000-gal. tank at the Steam Plant and the other is a 5,000-gal. tank at the MSRE. The existing dike around the tank at the Steam Plant needs minor modification to conform with the SPCC procedure. The 5,000-gal. tank at the MSRE is being removed from service.

5. Sewage Plant Discharge

The secondary sewage treatment ponds are now being constructed and should be in operation late this calendar year. The operation of the ponds should eliminate the low dissolved oxygen in White Oak Creek.

6. Mercury in White Oak Creek

We occasionally find mercury in excess of 0.005 ppm in White Oak Creek although we have not found it above that level at White Oak Dam in the last 1-1/2 years since we started analyzing for mercury. An investigation has shown that the source of mercury is the 4500 Area where metallic mercury has been found under the concrete basement floor. The job for doing something about eliminating the discharge has been recently assigned to the Chemical Technology Division.

7. PCB

Dan Nelson is getting ready to sample the river upstream from ORNL and White Oak Lake. K-25 sampling finished.

Procedure for handling PCB at ORNL has been written but needs modification as we have discussed over the phone.

8. Process Waste Treatment Plant

Construction is in progress and should be completed late this year. The plant is expected to remove 40% of the strontium activity being released to the river.

9. Burial Ground Study

The Environmental Sciences Division is studying means to reduce the release of activity from the burial grounds to the creek. A total of \$150,000 was appropriated for this study for FY1974, and proposals for future years are being prepared.

Pollution Control Project Status - PGDP

I. Fluoride Removal Projects

- A) C-410 H₂ Vent - Minor modifications should be completed within 60 days after the strike - \$61,000.
- B) C-420 HF Recycle - FY 1975 Project Design depends upon operation of the C-410 HF Scrubber - \$20,000.
- C) C-340 HF Recovery - not approved.
- D) F₂ Cell Electrolyte Neutralization - FY 1975 under design. There is a possibility this project may use the existing C-410 neutralization pit. - \$75,000.
- E) C-410 Tank Car Venting HF Scrubber - FY 1975 - Design depends upon operation of C-410 HF Scrubber - \$20,000.

II. HF Tank Farm and Associated Projects

- A) Residual asphalt has been removed from dikes at HF tank farm. Dikes are to be coated with HF resistant paint.
- B) Installation of a remote-controlled sprinkler system for the HF storage tanks should be completed within 2 months after the end of the strike - \$18,000.
- C) HF Liquid flow limit (between tank farm and C-410). Completion due in October 1974. The strike may delay the completion date - \$18,000.

III. PCB Transformer Diking - Preliminary design is completed for all askarel transformer diking. Engineering is proceeding with design and construction.

IV. Liquid Effluent Treatment Project - Design is proceeding. AndCo Chromate removal unit does not appear to be a feasible alternative - \$2,800,000.

V. Monitoring Stations and Flow Control

A) FY 1975 - Flow Monitoring Station - Big Bayou under design - \$35,000.

B) FY 1975 - Flow Control Structures on plant effluent preliminary design - \$12,000.

C) FY 1976 - Monitoring Station on Little Bayou - \$40,000.

D) Oil Spill Prevention - Plant has purchased oil containment boom and oil absorbent. Portable oil skimmer will be purchased soon.

VI. C-404 Solid Rad Waste Pit - Design is almsot complete on plans to reduce leaching. Chemical precipitation has already reduced uranium loss about 95%.

VII. C-400 Trichloroethylene Dike - Under design - previously scheduled to be completed at the end of October, 1974.

VIII. C-400 Raffinate Treatment - under design - may be included as part of Liquid Pollution Abatement Line Item.

IX. C-340 Dust Collector Revision - Preliminary planning - \$10,000.

X. C-340 HF Release Detection System - Preliminary planning - \$10,000.

AGENDA

UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING

November 6, 1974 - 9 a.m.

Oak Ridge - Y-12 Plant

1. Discussion of Reviewer Comments on 1973 Environmental Monitoring Reports.
2. Plans for 1974 Effluent and Environmental Monitoring Reports.
3. Other Items of Current Concern.

RGJ:ayb

10/29/74

Distribution:

H. H. Abee	H. Postma
R. C. Baker	M. Sanders
J. M. Case	I. G. Speas
P. C. Fourney	S. S. Stief
C. C. Hopkins	P. R. Vanstrum
J. C. Little	R. A. Winkel
C. J. Parks	E. J. Witkowski
J. H. Pashley	

This document has been reviewed for
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Sara L. Welch
ADC Signature

4/13/95
Date

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to the public by:

William J. Quinn
Technical Information Officer
Oak Ridge K-25 Site

4/28/95
Date

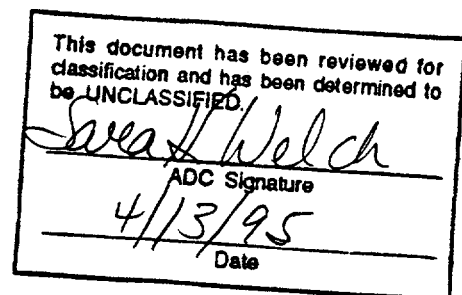
UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING

November 6, 1974

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Technical Information Officer Date
Oak Ridge K-25 Site

UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING

November 6, 1974

The UCC-ND Environmental Monitoring and Protection Committee convened on November 6, 9 a.m., in Oak Ridge. Those in attendance were H. H. Abee, M. C. Conrad, D. M. Davis, E. D. Gupton, R. G. Jordan, M. E. Mitchell, E. Roberts, M. Sanders, I. G. Speas, S. S. Stief, and E. J. Witkowski. H. W. Hibbitts, R. C. Sleeman, and J. F. Wing of the AEC Environmental Protection Branch were guests at the meeting.

Reviewer Comments on 1973 Environmental Monitoring Reports

AEC Headquarters convened a group of Area Office and contractor personnel, who were well versed in environmental monitoring, this summer to review all AEC Environmental Monitoring Reports. Comments on the UCC-ND 1973 Environmental Monitoring Reports were received and distributed to the Environmental Coordinators prior to the meeting. From a general discussion of the reviewers' comments, many of which were considered trivial or editorial in nature, it was concluded that a number of the suggestions made would be useful and would be incorporated in the 1974 reports where applicable.

H. W. Hibbitts briefly mentioned the recent AEC-HQ appraisal of the ORO Environmental Protection Branch and associated environmental programs. He expressed Headquarters concern about the Oak Ridge environmental monitoring program and the need for upgrading in a number of areas. Mr. Hibbitts stated that during the forthcoming AEC environmental management appraisal of the Oak Ridge facilities, environmental monitoring programs would be reviewed in depth. AEC-HQ appraisal recommendations and reviewer comments appropriate to each installation will be treated in some detail during the appraisal.

The Headquarters recommendation to implement a routine quality assurance program among the analytical laboratories which analyze significant numbers of environmental and effluent samples was discussed. A suggested approach for quality assurance, other than quality control and replicate samples, was the use of split samples to be exchanged between laboratories and analyzed for comparison of results on perhaps a quarterly basis. For such a program to be valid, uniform analytical procedures may be required among the laboratories. The AEC Environmental Protection Branch will develop a proposal for this type quality assurance program and forward to UCC-ND for comments and suggestions. The analysis of samples under such a program probably would be limited to pollutants which are not unique to a particular installation.

Mr. Hibbitts stated that following the Oak Ridge appraisal, he plans to visit Paducah to discuss Headquarters recommendations and reviewer comments on the Paducah environmental monitoring program.

Plans for 1974 Effluent and Environmental Monitoring Reports

H. H. Abee stated that those persons who supply data and text material for the Environmental Monitoring Reports should consider the AEC reviewers' comments when drafting material for inclusion in the 1974 reports. New text material should be prepared for changes in programs and more emphasis should be placed on interpretation of data.

H. W. Hibbitts suggested that the dose assessment sections of the reports be expanded to include an indication of exposure pathways considered, either by diagram or table, and calculation methods used. In addition, consideration should be given to inclusion of any routine data, such as sediments and sewage plant effluent data, which have not been included in previous reports.

Mr. Hibbitts also stated that it would be appropriate to prepare the report summary for the lay reader and the body of the report for the more informed or technical reader. The subject of the 1974 report preparation and contents will be discussed in more detail during the appraisal visit.

H. H. Abee stated that the 1974 effluent reports would be prepared as they have in the past but that quantities released will be tabulated in curies by individual radionuclides. This presents a classification problem in the case of enriched uranium from the Y-12 Plant which as yet has not been resolved.

EPA Draft NPDES Permits

In accordance with procedure, EPA submitted the draft NPDES Permits for the Oak Ridge facilities to the State of Tennessee for comments. At the end of the 30-day comment period, the State proposed that a number of additional effluent limits and sampling requirements be included in draft permits.

J. F. Wing distributed a tabulation of the suggested State effluent limits and monitoring requirements (copy attached) and asked that each installation develop alternate limits, where possible, based on past experience which they feel are reasonable. Mr. Wing requested these alternate limits and suggested sampling frequencies and types be supplied informally to the AEC Environmental Protection Branch by November 14. Mr. Jordan requested that the information be transmitted through the Office of Safety and Environmental Protection.

A meeting has been tentatively set for 9 a.m., November 19, in the Federal Office Building, Oak Ridge, at which representatives of the State, EPA, AEC, and UCC-ND will discuss these effluent limits and attempt to come to some agreement on the problem.

Other Items of Current Concern

J. F. Wing stated that AEC-ORO has sent a letter to the State of Kentucky, Bureau of Environmental Quality, which outlines the proposed course of action to control particulate emissions from the Paducah steam plants and includes a proposed compliance schedule. In addition, a meeting is planned in Nashville between the AEC-ORO legal staff and the State Attorney General's staff to discuss the compliance schedule for the ORGDP steam plant.

S. S. Stief advised that the new ORGDP classified burial ground was nearing completion and would be ready for use in the near future. A better records system is planned for materials transferred to the new burial ground.

M. E. Mitchell stated that the Cooling Water Blowdown Recycle Project at ORGDP should be completed and in operation by February 1975.

E. J. Witkowski reported that the HFIR Cooling Water Recycle System developed problems of sulfate crystalization on the wood of the cooling tower. Use of the softening recycle system has been stopped and the tower is being operated with normal blowdown as in past years. The Y-12 Plant portable Andco electrolysis chromate removal unit will be tested on the tower in the near future.

M. Sanders stated that Y-12 has selected two nonchromate treatment systems for use in the Y-12 cooling towers. Some problems have been encountered with the biocidal effectiveness and some residual chromate is still contained in the tower blowdown.

Meeting Schedule

The next meeting of the committee will be scheduled as agenda items indicate the necessity.


R. G. Jordan

RGJ:HHA:ayb

Attachment

DRAFT NPDES PERMITS

Attached is a table listing (1) additional NPDES effluent limits proposed by the State of Tennessee, (2) Tennessee effluent guidelines, and (3) ORO suggested permit limits. Tennessee effluent guidelines consist of average effluent concentrations and maximum stream limits. In the table it was assumed that the average effluent concentrations are applicable to ORGDP discharge points and HFIR sewage plant, while maximum stream limits are applicable to the New Hope Pond, Bear Creek, White Oak Creek, and Melton Branch discharge points. Effluent limits suggested by ORO are just suggestions and any comments or other limits are requested. Where no ORO limit is listed, please develop what limits, if any, you feel are reasonable, and supply them informally to us by November 14. Also, include what you feel are reasonable sampling frequencies and types.

Environmental Protection Branch
Safety & Environmental Control Div., ORO
R. C. Sleeman, Nov. 6, 1974

DRAFT NPDES DISCHARGE LIMITS

<u>Parameter</u>	<u>Tennessee Proposed</u>	<u>Tennessee Guidelines</u>	<u>ORO Suggested Limits</u>	<u>Remarks</u>
<u>ORGDP</u>				
<u>Point 001 K-1407-B Holding Pond</u>				
Total Nitrogen (N)	20	20	20	
Aluminum	1.0	250	-	
T. D. S.	2000	-	2000	
Phosphorous (MBAS)	5.0	-	-	Analysis questions
Manganese	.05	10.0	No limit	(Not related to ORGDP
Selenium	.01	.01	No limit	operations. Enough
Arsenic	.01	1.0	No limit	(negative data already
				(collected
BOD	2.0	30	Monitoring only	
Fluoride*	1.0	20.0		
<u>Point 005 K-1203 Sanitary Treatment Facility</u>				
Settleable Solids	0.5 ml/l	0.5 ml/l	-	
<u>Point 006 K-1007-B Holding Pond</u>				
BOD	Monitor	30	Monitor	
<u>Point 007 K-901-A Holding Pond</u>				
Zinc	0.1	2.0	2.0	
Phosphate	Monitor	-	Monitor	
<u>Point 008 K-710 Sanitary Treatment Facility</u>				
Settleable Solids	0.5 ml/l	0.5 ml/l		
<u>Y-12</u>				
<u>Point 001 Bethel Valley Quarry</u>				
Zirconium	1.5	-	-)	Not aware of these compounds being placed in quarry
Fluoride	1.5	20	-)	
Boron	10	500	-)	
Niobium Pentachloride monitoring			-	
<u>Point 002 Rodgers Quarry</u>				
Settleable Solids	.1 ml/l	.5 ml/l	-	
Turbidity*	30 JTU	-	-	
Sulfate	Monitor	-	-	
<u>Point 003 New Hope Pond</u>				
Phosphate (MBAS)	5	-		Analysis questioned
BOD	2	-	-	
Settleable Solids	.1 ml/l	-	-	
Fluoride	1.0	1.0	2.0	
Total Nitrogen	20	-	20	
T.D.S.	2000	2000	2000	
Zn	0.1	0.1	-	
NH ₃ as N	1.6	1.0	-	
Dissolved Oxygen	5	5	5	

<u>Parameter</u>	<u>Tennessee Proposed</u>	<u>Tennessee Guidelines</u>	<u>ORO Suggested Limits</u>	<u>Remarks</u>
Cadmium	Monitor	-		Enough negative data already collected
Mercury	Monitor	-	Monitor	
Lead	Monitor	-		Enough negative data already collected
<u>Point 004 Bear Creek</u>				
Aluminum	1.0	1.0	-	
Chromium (total)*	.05	.05	.05	Discontinue after enough negative data collected
Total Nitrogen (N)	20	-	20	
Oil & Grease	10-15	No visible	10-15	
Dissolved Oxygen	5	5	No limit	Not related to Y-12 operations
pH	6.5-8.5	6.5-8.5	6.5-8.5	
<u>ORNL</u>				
<u>HFIR Sewage Plant</u>				
BOD	10	See remarks	20	State sewage
Suspended Solids	15	See remarks	30	plant limits dependent
Ammonia (N)	1.6	See remarks	5.0	on assimilative
Settleable Solids	.5 ml/l	See remarks		capacity of stream.
Chlorine Residual	.5	See remarks	*	ORO suggested limits
Fecal Coliform	200-400/100 ml	See remarks	*	same as ORNL sewage plant limits
<u>Point 001 White Oak Creek & Melton Branch</u>				
Chromium (total)	.05	.05	.05	
Total Nitrogen	20	20	20	
Zinc	.1	.1	.1	
Fluoride	1.0	1.0	2.0	
Mercury	.005	.005	.005	
COD & BOD*	Monitor	-	Monitor	
Dissolved Oxygen	5	5	5	

* Draft EPA Permit Required Monitoring Only.

AGENDA

UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING

March 13, 1975 - 9 a.m.

Oak Ridge - Y-12 Plant

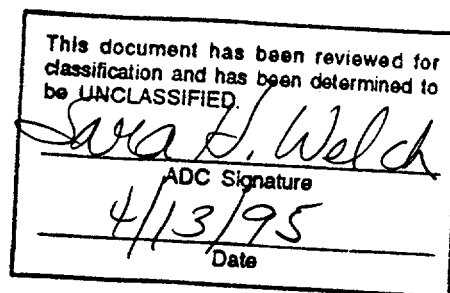
1. Environmental Monitoring Reports - Progress - Each Installation
2. Quality Assurance - Each Installation
3. H. F. Control and Monitoring - Each Installation
4. Environmental Consideration in Construction Contracts - Each Installation
5. Pollution Control Projects - Status - Each Installation
6. Items of Note - Each Installation

RGJ:cm

2/18/75

Distribution:

H. H. Abee	H. Postma
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J. M. Case	I. G. Speas
P. C. Fournery	S. S. Stief
C. C. Hopkins	P. R. Vanstrum
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William D. Smith

Technical Information Officer

Oak Ridge K-25 Site

4/28/95

Date

UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING

March 13, 1975

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Oak Ridge K-25 Site

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UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING

March 13, 1975

The UCC-ND Environmental Monitoring and Protection Committee convened on March 13, 9 a.m., in Oak Ridge. Those in attendance were H. H. Abee, R. C. Baker, M. C. Conrad, W. D. Cottrell, D. M. Davis, D. G. Jacobs, R. G. Jordan, J. C. Little, M. E. Mitchell, J. H. Pashley, I. G. Speas, and S. S. Stief.

Environmental Monitoring Reports - Progress

M. C. Conrad stated that a draft of the PGDP Environmental Monitoring Report has been completed and submitted for edit and review.

S. S. Stief reported that draft material from ORGDP, for inclusion in the Oak Ridge Environmental Monitoring Report, has been prepared and transmitted to the Office of Safety and Environmental Protection. He stated that fluoride-in-air data were surprisingly high but difficult to interpret because of the apparently high fluoride background in the area from other sources. D. G. Jacobs stated that draft material from HNL has been written for everything but the radiation dose calculations. The first computer run on dose calculations was made on March 12 and is being checked for validity and accuracy. Analyses of fish samples from the Clinch River are still incomplete. Mr. Jacobs stated that the remainder of the report material should be completed within the next week.

M. Sanders reported that all material from the Y-12 Plant has been completed and submitted for inclusion in the report.

Quality Assurance

H. H. Abee reviewed the quality assurance requirements of AECM (or ERDAM) Chapter 0513 and the ORO Environmental Protection Staff discussion of the subject during the last Oak Ridge facility appraisals. Although the ORO Environmental Protection Staff had agreed to provide some guidance and planning for a quality assurance program, no information has been received as of this date. Mr. Abee stated that a program should be started to exchange liquid effluent samples for laboratory analysis to examine validity of analytical results and renewed emphasis should be placed on calibration of instrumentation and documentation of calibration procedures and results.

The Committee agreed to start a sample exchange program between ORGDP, PGDP, and Y-12 beginning with the next quarter for determination of such things as uranium and fluorides in liquid effluent samples.

HNL will investigate the possibility of sample exchange with ERDA Health and Safety Laboratory.

HF Control and Monitoring

M. Sanders reported that based on a mass balance calculation, the Y-12 Plant was releasing about 45,000 pounds of fluorides per year. Capital equipment funds have been requested to install additional HF control equipment.

Monitoring for HF at Y-12 consists of collecting a continuous sample for a period of seven days once each month at three sampling locations using the impregnated filter paper technique. Sampling stations are located in the middle of the plant and at the east and west ends of the plant near the perimeter fence.

R. C. Baker stated that about 60,000 pounds of fluoride per year were being released from the Paducah Plant, a large percentage of which comes from the feed plant. The feed plant scrubber is still not on-stream because of operational problems. M. C. Conrad reported that impregnated filter paper has been used at Paducah for sampling HF in the environment during the last year. The paper samples are easier to service and analyze. The analytical data also appear more consistent and reliable. Data for 1974 were about twice the levels found in 1973 which is probably due to increased production levels. Mr. Conrad stated that new plans for pollution control projects for HF control have been dropped due to the pending shutdown of the feed plant. He stated that the development work has been completed on scrubber systems and the technology is in hand to install scrubbers in the future if needed. R. C. Baker stated that the Paducah Laboratory has been developing a liquid-gas dispersion scrubber which they feel has considerable potential. Tests indicate 99% removal of HF at a 5.5% input concentration. An internal report on the work has been prepared but the report has not been distributed.

S. S. Stief stated that most of the HF released from ORGDP is from the purge cascade. A horizontal scrubbing tower using CaOH is being installed and should provide a significant reduction in releases. Additionally, scrubbers are being installed at stabilization stands to reduce fluoride releases. Mr. Stief noted that releases from ORGDP were considerably less than those from PGDP, thus the concentrations of fluorides measured in the environment appear higher than would be expected. He postulated that coal-burning electrical power plants in the area may be adding a significant quantity of fluorides to the atmosphere. ORGDP has not started using the impregnated filter paper technique for fluoride monitoring. The present equipment is old and not designed for continuous use. Mr. Stief felt that this equipment needs replacing. New sampling equipment would probably cost about \$500-\$600 per station. He also indicated a need for adding several additional perimeter sampling stations if power sources are available.

Environmental Considerations in Construction Contracts

S. S. Stief reviewed a problem encountered at ORGDP with several construction contractors regarding disposal of spoil dirt, concrete, and other waste materials. Part of the problem occurred apparently because of lack of definitive language in the construction contracts regarding handling and disposal of waste materials.

J. C. Little stated that he had examined several construction contracts and that generally a special condition was included to the effect that all debris shall be disposed of, at the direction of the construction engineer, within five miles of the site. The wording was not standard, however, and was not included in all contracts. Mr. Little cited the following documents which provide some guidance with regard to environmental pollution control during construction work: AECM Appendix 6301, AECM Appendix 5550, Y-EF-538 Engineering Criteria, and Regulatory Guide 4.2. Some consideration should be given to providing more specific guidance

in future construction contracts regarding environmental pollution control. Mr. Little indicated that he would pursue the matter.

Pollution Control Projects - Status

Representatives from each installation reviewed their current pollution control projects and the status of completion. A summary for each installation is attached.

Items of Note

M. C. Conrad noted that discussion with the EPA Laboratory in Cincinnati revealed that the membrane filter technique of analysis for fecal coliform was not acceptable for chlorinated effluents from a sewage treatment plant under the NPDES permit.

M. Sanders indicated that Y-12 currently is cleaning a large number of springs from ORGDP. The material used for cleaning is Lux. The effluent from the cleaning operation presents an environmental pollution problem, the solution of which is under study.

S. S. Stief pointed out that a number of impact statements were being developed in which ORGDP personnel are involved: (1) Environmental Analysis for the Oak Ridge Area, (2) Impact statement for a gas centrifuge demonstration plant, (3) Impact statement for a gaseous diffusion add-on at Portsmouth, and (4) Impact statement for a gas centrifuge add-on at Oak Ridge. Much of the material in these various statements is interrelated and some coordination is needed at ORGDP to assure that things common to all statements are consistent, otherwise problems may occur. He stated that lack of personnel time available in the engineering and environmental protection staffs places severe limitations on adequate coordination considering the deadlines established for completing some of the statements.

H. H. Abee distributed copies of the EPA Proposal Interim Drinking Water Standards to each installation for review.

Meeting Schedule

The next meeting of the Committee will be held in July at Paducah. The exact date of the meeting will be established later.

H. H. Abee
for R. G. Jordan

RGJ:HHA:cm

Attachments

March, 1975

POLLUTION CONTROL PROJECT STATUS - PGDP

I. FLUORIDE REMOVAL PROJECTS

- A. C-420 H₂ Vent (RCD 12959) - The scrubber system is not yet operational due to instrumentation problems. \$61,000
- B. C-420 HF Recycle Scrubber (RCD 14287) - This project has been dropped.
- C. C-340 HF Recovery - This project was not approved. The waste KOH solution (containing fluorides) is being transported to the C-410 Neutralization Pit for precipitation of fluorides prior to release.
- D. C-410 F₂ Cell Electrolyte Neutralization - Present plans call for relocation of the cell turning fixture to near the C-410 Neutralization Pit. The effluent would be treated with lime to precipitate fluorides.
- E. C-410 Tank Car Venting (HF Scrubber) - This project has been dropped. Feed Plant is scheduled to close down in 1977.

II. HF TANK FARM AND ASSOCIATED PROJECTS

- A. HF Storage Tank Sprinkler System (RCD 14139) - Complete
- B. HF Liquid Flow Limit (RCD 12989) - Control of HF leaks between HF tank farm and C-410 and C-420. This project should be completed by June 30, 1975. (Awaiting material delivery).

III. PCB CONTROL

Outside transformers have been diked. Floor drains near transformers in C-337 are being blocked.

IV. LIQUID EFFLUENT TREATMENT PROJECT - Construction started July, 1974.

Estimated completion date is unofficially about July, 1976.

V. SPILL PREVENTION

FY 1975 project (\$12,000) to provide flow control on plant effluents has been approved. The authorization is being changed and resubmitted to provide a project with more flexibility at lower cost. If approved, this project will provide for inflatable bags that can be used in culverts to stop plant drainage in the event of a spill. A trailer to house this equipment and oil cleanup equipment would also be provided.

VI. WATER QUALITY MONITORING STATIONS - (\$78,000) - FY 1975

This project has not yet been authorized.

VII. C-404 SOLID RADIOACTIVE WASTE PIT

Work to reduce leaching is nearing completion. Radioactive discharges have been reduced from 945 kilograms of uranium (1973) to 22 kilograms (1974). This is a 98% reduction.

VIII. C-400 TRICHLOROETHYLENE DIKE - Complete.

IX. C-611 Lagoon #2

Lagoon construction and subcontract work are complete. Additional work is required to provide access to the lagoon and for providing a weir for flow measurement.

ATTACHMENT II

STATUS OF POLLUTION ABATEMENT PROJECTS AT ORGDP

1. The various ORGDP actions of the Plant Liquid Effluent Pollution Control Project are proceeding as scheduled. The Neutralization Facilities work continues at the K-1413 collection pit area, the K-1420 decontamination area, the K-1407-A neutralization pit and the coal yard area. Foundation work and underground piping at the small sewage plant (K-710) are nearing completion. The construction package for the large sewage plant (K-1203) is out for bids with the bid opening scheduled for March 18, 1975.
2. The installation of the new purge cascade scrubber is approximately 50% completed. Present estimates call for this facility to be operable by the end of CY-1975.
3. The containment of oil and hazardous materials project was recently forwarded to Giffels Associates for preliminary engineering work. Due to an apparent overrun in costs, the portion of this project dealing with the containment of HF within the K-1131 facility has been deleted.
4. The construction of the dam, weir, and sampling station at the outfall of the sanitary water plant (K-1515) was delayed due to a potential conflict with the TVA right-of-way leading from Bear Creek Road to the site of the LMFBR. The construction of this facility at a different site (just north of Bear Creek Road) necessitated new design work, which is currently in progress.
5. The availability of the K-802 cooling tower basin for storing the K-1232 waste was recently delayed due to the discovery of leaks in the vertical walls. The patching of these leaks, which are from expansion joints, should be complete in the near future.

6. Three aerators have been installed in the K-1007-B holding pond to provide for reoxygenation during emergency conditions. Under normal conditions these aerators will not be needed to maintain acceptable oxygen concentrations.

ATTACHMENT III

POLLUTION CONTROL PROJECTS STATUS

HNL Plant

1. Sewage Disposal - The secondary treatment system has been completed. The operation is now being started with the filling of ponds.
2. Chromate discharges - The first test of the new process was unsuccessful and the system had to be altered. Present plans are to have the equipment operating again by the end of March.
3. Ponds for controlling pH in White Oak Creek - Project being held up for money. We hope to have it financed early in FY 1976.
4. Radioactive waste discharges to creek - The new process waste treatment plant, which will eliminate 40% of the activity released to the creek will be completed this fall. Testing and startup of the plant will require several months. The plant should be in operation early in 1976.
5. PCB - All changes (dikes, etc.) around transformers have been completed and procedures for checking have been written. Platform for storing old transformers is not completed.
6. Oil spill contingency plan - All oil storage tanks are now in compliance. Sorbent booms that will be used at White Oak Dam in the event of a spill have been received and a nylon rope that will enable us to install the booms in a hurry has been installed across the dam. The procedure for checking for oil spills has not yet been added to our waste disposal operating procedures.
7. All bulk chemical storage tanks (over 100 gal.), except two tanks at the Steam Plant, have been diked or other protective measures have been taken to prevent accidental spills into the creek. The drainage around the Steam Plant tanks will eventually go to the pH ponds.

ATTACHMENT IV

POLLUTION CONTROL PROJECTS STATUS
Y-12 Plant

The construction of the denitrification facility is on schedule with planned startup - July 1976.

Funding for all other pollution control projects has been deferred to FY 1977; however, R & D is continuing to improve pollution abatement techniques in problem areas.

AGENDA

UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING

July 18, 1975 - 8:30 a.m.

Paducah

1. NPDES Experience and Problems to Date -- Each Installation
2. Applicability of Electroplating Standards -- Each Installation
3. Status of Quality Assurance Programs -- Each Installation
4. Status of Engineering Studies Required by NPDES Permits -- Each Installation
5. Pollution Control Projects - Status -- Each Installation
6. Items of Note -- Each Installation

RGJ:cm

7/1/75

Distribution:

H. H. Abee	H. Postma
R. C. Baker	M. Sanders
J. M. Case	I. G. Speas
P. C. Fourney	S. S. Stief
C. C. Hopkins	P. R. Vanstrum
J. C. Little	R. A. Winkel
C. J. Parks	E. J. Witkowski
J. H. Pashley	File (NoRC)

This document has been reviewed for classification and has been determined to be UNCLASSIFIED.	
<i>Sara L. Welch</i>	ADC Signature
<i>4/13/95</i>	Date

This document has been approved for release to the public by:

William D. Quinn
Technical Information Officer
Oak Ridge K-25 Site

4/28/95
Date

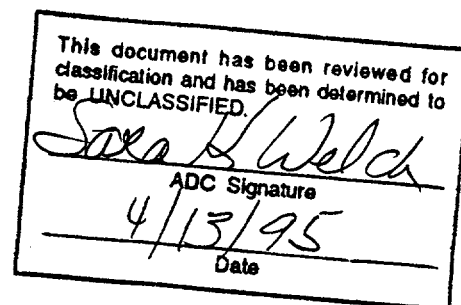
UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING

July 18, 1975

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Date

UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING

July 18, 1975

The UCC-ND Environmental Monitoring and Protection Committee convened on July 18, 8:30 a.m., at Paducah. Those in attendance were H. H. Abee, R. C. Baker, E. E. Beauchamp, B. G. Bowers, M. C. Conrad, W. D. Cottrell, R. G. Jordan, J. C. Little, M. Sanders, I. G. Speas, S. S. Stief, and E. J. Witkowski. Attending part time were D. L. Chumbler and V. G. Katzel from the Paducah Laboratory.

Fluoride Sampling and Analysis

R. C. Baker reviewed the Paducah air sampling and analysis results for fluorides for the past several years. Plots of the environmental levels and release information showed a positive correlation with both the bubbler sampling technique used in the past and with the treated filter paper sampling technique used during the last year. However, comparative data at the perimeter fence locations indicate levels based on the filter paper technique to be roughly a factor of two higher, when compared to release data, than past bubbler sampler data.

V. G. Katzel and D. L. Chumbler discussed the Paducah Laboratory development work and comparative studies on the filter paper technique. This work was started in 1971 as a result of the problems associated with the use of bubblers for continuous sampling (freezing, evaporation, difficulty in handling, etc.). Both laboratory and field comparative studies were done on the filter paper technique, all of which indicated good results, and suggested a convenient usable system. Mr. Chumbler noted that when the bubbler system was in use, a filter for radioactive particulate sampling was in the sampling train ahead of the bubbler and removed about 16% of the fluorides which existed as particulates. This could account for some part of the factor of two difference noted in the data. Additional study of the problem is indicated.

Mr. Baker stated that the current fluoride data were consistent and levels were generally as expected; that is, levels at the perimeter fence are higher than at the one mile stations which indicate the plant to be the source of fluoride releases.

S. S. Stief stated that it was difficult to make an interpretation of the ORGDP fluoride data. ORGDP is currently using Boyce-Thompson bubblers and levels measured at distances up to five miles from the plant are sometimes higher than those close to the plant (>4ppb). Some comparative studies of the filter paper technique and the bubbler sampler are being conducted, but all of the results are not currently available. Some of the preliminary results appear to be inconsistent. Mr. Stief suggested that representatives of the ORGDP and Paducah Laboratories get together as a starting point to resolution of the fluoride sampling and analysis problem.

Mr. Baker suggested sending one half of a Paducah perimeter fence location sample to ORGDP for comparison of analytical results. Exchange of filter samples for comparison of analytical results will be pursued.

Mr. Jordan will discuss the fluoride sampling and analytical inconsistencies with Dr. C. D. Zerby of the Technical Division who is currently aware of the problem.

NPDES Experience and Problems To Date

S. S. Stief reported that problems encountered thus far at ORGDP as a result of the NPDES Permits can be characterized as:

1. those associated with administering the new sampling program and
2. those concerned with the actual NPDES limitations.

The administrative problems were minimized through a considerable amount of planning, which involved a revamping of the monitoring programs to suit the needs of the permits. The new programs were outlined in detail and forwarded to the utilities and laboratory personnel. Further administrative changes involved the assignment of a utilities foreman to supervise the collection of all samples; in addition, one hourly man was given the sole responsibility for sample collecting.

The administrative problems encountered included the failure, in a couple of cases, to collect samples, and the failure to analyze certain samples for parameters required (oil and grease). All of these problems have been corrected and every parameter is now being quantified.

The problems of limitation compliance consist of:

1. chromium in K-1007-B lake due to flushing of fire hydrant -- situation has been controlled by stopping all fire water flushing until the non-chromate fire water system is operable.
2. pH violation (high) at K-901-A pond due to input from RCW softening (makeup treatment) process -- EPA has been notified that this parameter will continue to exceed 9.0 routinely (between 9.1 and 9.5)
3. fluoride violation at K-1007-B pond -- reason unknown (possibly K-1231) -- rerun showed compliance.

M. Sanders reported that few problems had been encountered at Y-12 as a result of NPDES Permits. Dissolved oxygen was out of compliance at the outfall of New Hope Pond for a short period of time, but this was corrected with the installation of an aerator near the outfall. The effluent from Rogers Quarry has been out of compliance with respect to pH a number of times since June. Investigations revealed the inflow from Y-12 steam plant ash sluicing to be at a pH of about 7.5 while the effluent from the quarry was about pH 9.5. One theory suggests that bacteria in the warmer top layer of water may be digesting carbonates with a resulting increase in the pH. This theory is being investigated and data will be made available at a later date.

E. J. Witkowski reported that problems of noncompliance with current permit limits have occurred at three release points at HNL. The main sanitary sewage treatment plant is not meeting the ammonia (N) limits. Discussions have been held between engineering and the construction contractor regarding the cause of the problem. No solution to the problem is apparent at the present time. The HFIR sewage plant has been out of compliance several times during the last quarter with regard to chlorine residual and settleable solids. These problems are being corrected by adjustment of chlorine feed and by removal of the excess accumulation of sludge. Melton Branch has been out of compliance with respect to chromium limits as a result of cooling tower blowdown from the HFIR since the issuance of the permits. EPA has been notified that this problem will continue until chromate removal equipment can be installed. Two alternatives are being investigated; installation of Andco chromate removal units or change to a non-chromate corrosion inhibitor. A decision between the alternatives will be made when additional test data have been accumulated and cost estimates have been finalized. There are no problems currently with White Oak Creek since permit limits on chromium and pH do not become effective until July 1, 1977. By that time reduction or elimination of chromium in cooling tower blowdown and equalization of pH variations should be accomplished.

M. C. Conrad stated that the sanitary sewage treatment plant at Paducah has been out of compliance due to malfunction of the mechanical collection system. Replacement of the collection system was started but has been delayed because of a strike by construction personnel doing the work. The repairs should be completed by mid-August. Some minor problems were encountered with the analytical procedure used for analyzing a number of parameters, but these have been corrected. Vandalism at some of the creek sampling stations off plant resulted in loss of composite samples on several occasions and required the collection of grab samples as a supplement.

Applicability of Electroplating Standards

S. S. Stief stated that the ORGDP electroplating facility falls within the small facility category of the regulations. The only effluent limitations specified for small facilities are cyanide concentrations, flow equalization, and pH control. No cyanide is used at ORGDP so this parameter requires no control. The new in-line retention basin to be provided as a part of the Hazardous Chemical Containment Project (75 GPP) will provide for both flow equalization and pH control.

M. Sanders stated that the applicability of the standards to Y-12 plating operations is uncertain at the present time because plating records are not kept in the manner required by the standard and effluent information is minimal. Data is being gathered to evaluate the applicability of the standard and assess the degree of compliance.

M. C. Conrad stated that Paducah was essentially in the same situation as the Y-12 plant with regard to determining the degree of applicability. Data is being gathered for evaluation. Mr. Conrad stated that plating was normally done at Paducah only when it could not be done by an outside plating firm or when an extremely rush job of plating was needed. It appears that the Paducah plating facility will fall in the small facility category. E. J. Witkowski stated that the HNL plating operations were in the small facility category and were not a problem.

Status of Quality Assurance Programs

H. H. Abee reviewed the requirements for quality assurance programs as outlined in Manual Chapter 0513 and as recommended in the last ERDA-ORO environmental management appraisals of the four plants. A number of areas in which quality assurance should be implemented were suggested and examples were cited of laboratory analysis quality assurance and field verification of sampling equipment, flow measurements, instrument calibration, etc. Mr. Abee stressed the need for documentation of QA procedures.

B. G. Bowers presented analytical results of the liquid effluent sample exchange program which was started last quarter between ORGDP, PGDP, and the Y-12 plant. The fluoride and chromium data from the three laboratories were reasonably consistent. The comparison of uranium results was rather poor. Sample analysis data are presented in Attachment I. The sample exchange program will continue and HNL will start participating in the program for chromium analysis. M. Sanders stated that Dr. R. W. Morrow is developing a QA plan for Y-12 environmental sample analysis.

S. S. Stief reported that the Environmental Management Group at ORGDP has assumed the overall responsibility for the Environmental and Effluent Monitoring Quality Assurance Programs. While the incorporation of the program itself is 95% complete, considerable work remains on the documentation effort. M. J. Ellis has overall responsibility for the QA program, including documenting and updating. The specifics of the program are summarized as follows:

1. QA program for liquid sampling -- Foster Phillips of Utilities Department.
 - a. Detailed operating procedures for hourly man doing actual sampling -- have been collected according to procedures.
 - b. QA procedures documented -- routine maintenance of samplers, calibration of instruments, assurance of clean sample containers, etc. -- signature of sample collector on each data sheet.
2. QA program for atmospheric and gaseous effluent sampling -- C. L. Buskirk of Laboratory.
 - a. Detailed operating procedures for collecting and transporting samples.

- b. QA procedures documented -- routine maintenance of samplers, calibration of equipment, etc.
- 3. QA program for soil, sediment, and vegetation sampling -- M. J. Ellis.
 - a. Operating procedures for collecting samples (location, amount, containers, etc.).
 - b. QA measures documented -- up-to-date maps of locations, maintenance of sampling equipment, cleaning of equipment, etc.
- 4. QA program for analytical work -- Buskirk.
 - a. Detailed procedures for quantifying each parameter required (EPA approved).
 - b. QA procedures documented -- control samples, spiked samples, calibration of equipment, exchange of samples with other labs -- signature of analyst on all data submitted to Environmental Management Group.

M. C. Conrad stated that the Paducah QA documentation effort was proceeding along the same lines as ORGDP; however, the final product would be in a briefer form. A short summary data sheet will be prepared for each sampling location and will contain all pertinent QA information related to that sampling location. Laboratory QA procedures will be compiled into a single document which will be available for review.

E. J. Witkowski stated that a lot of QA had been incorporated into the effluent and environmental monitoring programs at HNL but documentation had not been started. E. E. Beauchamp and W. D. Cottrell will be responsible for the documentation program. Mr. Beauchamp stated that the review of the ORGDP program presented by Mr. Stief was quite helpful and could be used as a guide in documenting HNL procedures. Mr. Beauchamp noted that the Instruments and Controls Division of HNL would be responsible for documentation of QA for instrumentation used in the monitoring programs.

Status of Engineering Studies Required By NPDES Permits

E. J. Witkowski reported that the only study required from HNL involved chromate removal from cooling tower blowdown. This may not be necessary if a change to non-chromate corrosion inhibitors is implemented.

M. C. Conrad stated that the engineering study of alternatives for compliance in the Bayou Creeks had been completed and a report issued to ERDA with recommendations regarding fluoride, chromium, and temperature control measures. No information has been received with regard to EPA acceptance or rejection of the recommended alternatives. Mr. Conrad stated that other reporting requirements were on schedule.

M. Sanders reported that a plan has been prepared for phasing out the S-3 Acid Waste Ponds. One pond will be neutralized, taken out of service during the next year, and the results of this action studied. Pending acceptable study data, additional ponds will be phased out in succeeding years.

S. S. Stief stated that the only ORGDP effluent requiring engineering studies to provide for compliance with the NPDES permits is that from K-1231. Currently, treatability studies are being finalized by U.T. to provide for assurance that the waste can be successfully treated in the new K-1203 sewage plant. A final report on the proposed method of treatment is expected from Engineering by September 1, 1975.

All other NPDES requirements are in the construction phase and should be completed by the scheduled NPDES compliance dates.

Pollution Control Projects - Status

The Environmental Coordinators from each of the four plants made a brief presentation of the status of pollution control projects. Summaries of pollution control project status are included as Attachments II, III, IV, and V.

Items of Note

E. J. Witkowski discussed the circumstances surrounding HNL work on a Melton Valley Drive extension to the old EGCR site. Work on this extension was apparently being done without work orders or management awareness, and no environmental assessment was prepared. ERDA-ORO became aware of the work as a result of a question from a fisherman regarding construction of a causway across a small embayment near the EGCR site. ERDA-ORO Environmental Protection Branch personnel reviewed the site and held discussions with HNL Management and Plant and Equipment Division personnel regarding the propriety of such activities. The outcome of the discussions was a directive from ORO to cease work on the extension.

Mr. Jordan stated that the other installations should take notice of and profit by the HNL experience. Future incidents such as this should be prevented if possible. All construction projects should be reviewed by the Environmental Coordinators for potential environmental pollution problems.

J. C. Little will make provisions for the Environmental Coordinators to be invited to all Contractor kick-off meetings.

M. C. Conrad noted that a motor cleaning facility is being proposed at Paducah as part of the CUP uprating program and that the effluent from this facility may be a problem. Paducah Engineering is considering a settling lagoon with an oil skimmer on the outlet as a treatment facility. The effluent from the lagoon would discharge into the East-West ditch, which empties into Big Bayou Creek. This does not appear to be an acceptable treatment method based on effluent characteristics and the Laboratory

is investigating other treatment alternatives.

H. H. Abee pointed out that an environmental assessment would be required for the facility because of the effluents. EPA would need to review the treatment proposed and incorporate some additional parameter limitations in the discharge point permit on Big Bayou through which the effluent would flow.

S. S. Stief noted that similar facilities will be needed at ORGDP and Portsmouth and suggested the problem be pursued on a three plant basis.

The monthly Monitoring Reports were discussed at some length with regard to the parameters reported and their relationship to compliance dates required by the NPDES Permits. It was agreed that future monthly Monitoring Reports should include only those parameters currently out of compliance and eliminate parameters which are to be limited at future dates by the NPDES Permits.

R. G. Jordan stated that J. F. Wing, ERDA-ORO Environmental Protection Branch, suggested it would be appropriate to make some noise measurements in the environment around the gaseous diffusion plants. Discussion followed concerning where measurements should be made. It was suggested that measurements be taken at the perimeter fence line and at the nearest occupied residence or area.

Meeting Schedule

The next meeting of the committee will be held in November. The exact date will be determined later.


R. G. Jordan

RGJ:HHA:cm

Attachments

Attachment I

Y-12 SAMPLE (EAST FORK POPLAR CREEK)

	<u>Y-12 Lab</u>	<u>K-25 Lab</u>	<u>Paducah Lab</u>
Uranium	.292 mg/l	0.48	.28 mg/l
Fluoride	1.07 mg/l	1.0	1.1 mg/l
Nitrates	13 mg/l	12.33	12 mg/l
Chromium	< .01 mg/l	< .05	< 0.02 mg/l

K-25 SAMPLE (1B)

	<u>Y-12 Lab</u>	<u>K-25 Lab</u>	<u>Paducah Lab</u>
Uranium	1.845 mg/l	2.58	0.95 mg/l
Fluoride	2.03 mg/l	1.9	2.2 mg/l
Nitrates	77 mg/l	66.63	70 mg/l
Chromium	.70 mg/l	.7	.81 mg/l

K-25 SAMPLE (2B)

	<u>Y-12 Lab</u>	<u>K-25 Lab</u>	<u>Paducah Lab</u>
Uranium	.006 mg/l	0.21	.005 mg/l
Fluoride	.88 mg/l	0.8	0.9 mg/l
Nitrates	2 mg/l	5.15	< 1 mg/l
Chromium	.017 mg/l	< .05	< .02 mg/l

PADUCAH SAMPLES

	<u>Y-12 Lab</u>		<u>K-25 Lab</u>		<u>Paducah Lab</u>	
	<u>PAD-1</u>	<u>PAD-2</u>	<u>PAD-1</u>	<u>PAD-2</u>	<u>PAD-1</u>	<u>PAD-2</u>
Fluoride	.42 mg/l	9.6 mg/l	0.3	8.0	0.3 mg/l	7.5 mg/l
Nitrates	4.95 mg/l	26 mg/l	2.57	16.83	4.7 mg/l	25 mg/l
Chromium	0.3 mg/l	1.4 mg/l	0.35	1.4	0.33 mg/l	1.5 mg/l

PADUCAH SAMPLES

	<u>Y-12 Lab</u>		<u>K-25 Lab</u>		<u>Paducah Lab</u>	
	<u>PAD-3</u>	<u>PAD-4</u>	<u>PAD-3</u>	<u>PAD-4</u>	<u>PAD-3</u>	<u>PAD-4</u>
Uranium	.397 mg/l	.238 mg/l	0.345	0.118	2.2 mg/l	0.10

STATUS OF POLLUTION ABATEMENT PROJECTS AT ORGDI

July 16, 1975

1. The Plant Liquid Effluent Pollution Control Projects are proceeding with minor delays occurring due to delays in shipping of equipment. Work on the Neutralization Facility which involves connection of acid drains from K-1413, K-1401, and K-1420 to the K-1407-A pit and installation of lime storage bin and oil skimming equipment is approximately 80% complete. Delays in completion of K-710 sewage treatment plant are being experienced due to equipment delivery however this project is approximately 80% complete. Cousins Construction Company was awarded the contract for construction of the large sewage plant (K-1203) and recently began work on this effort. No delays in the previously set completion date are foreseen.
2. The installation of the new purge cascade scrubber is approximately 65% complete. The facility is on schedule and expected to be operable by the end of CY-1975.
3. The preliminary engineering work on Containment of Oil and Hazardous Materials Project has been completed by Giffels and drawings submitted to ERDA and UCCND for approval. Review by engineering, maintenance, and environmental management, revealed that certain corrections and substitutions were necessary in order to achieve objectives previously outlined in the general scope of the projects. Comments were tabulated and drawings returned to Giffels for incorporation of necessary revisions.
4. The construction of the dam, weir, and sampling station at the outfall of the sanitary water plant (K-1515) was previously delayed due to a potential conflict with the TVA right-of-way leading from Bear Creek Road to the site of the LMFBR. The change of site necessitated the need for new design work. The design work has been completed and the work will begin in the fall when TVA drops the water level. This delay is essential to eliminate the expense of constructing dams or other flow diversion facilities during construction.

5. The K-802 cooling tower basin has been repaired and is presently being used for the storage of K-1232 waste.
6. A contract has been awarded to Burns and McDonnell (AE) of Kansas City, Missouri to write the design specifications for electrostatic precipitators for the ORGDP Steam Plant. The specifications were completed and submitted to ERDA and UCCND for approval. Comments were submitted and B & M is in the process of making revisions. Once the revisions are complete the project will go out for bids. The bid phase is expected to begin by the end of July.

Attachment III

JULY, 1975

POLLUTION CONTROL PROJECT STATUS - PGDP

I. FLUORIDE REMOVAL PROJECTS

- A. C-420 H₂ Vent - This project has been delayed due to chronic equipment and instrumentation problems. The scrubber pump has been repaired and is due to be tested July 14-18.
- B. C-410 F₂ Cell Electrolyte Neutralization - The cell-turning fixture will be relocated adjacent to the C-410 Neutralization Pit. The project is being funded as expense and should be completed during late CY 1975.
- C. C-340 HF Scrubber - The KOH solution from the C-340 scrubber is transported to the C-410 Neutralization Pit for treatment. This method of disposal reduces the fluoride being discharged and eliminates the high pH problems in the C-340 effluent ditch. Laboratory work to investigate further reduction of fluoride discharges from this source has begun.

II. PCB Control

Waste Askarel Storage - (\$20,000)

A storage facility to store askarel contaminated wastes is planned for FY 1976. This facility will provide protection from the weather and vehicular traffic and will be provided with a trench-type dike.

POLLUTION CONTROL PROJECT STATUS - PGDP - July, 1975 - (continued)

III. SPILL PREVENTION AND CONTROL

- A. HF Liquid Flow Limit - (\$27,000) - This project provides automatic valves to prevent flow of HF if a leak occurs in the piping system connecting the C-410 tank farm, loading dock, and C-410 and C-420 vaporizers. Some material still has not been delivered and the cost has been increased from \$18,000 to \$25,000. This project should be completed by December 31, 1975.
- B. Drainage Ditch Flow Control - (\$12,000) - This project has been approved and most items have been purchased. The project provides a spill control trailer equipped with inflatable rubber bags which can stop all flow in five of the plant's drainage ditches if necessary to contain a spill. Compressed air cylinders will be used to inflate the bags. Also stored in the trailer are a portable oil skimmer, oil containment booms, oil absorbent, and miscellaneous accessories such as rakes, ladders, boots, etc. Two portable tanks are available for collection of oil pumped by the portable oil skimmer during spill cleanup.

IV. LIQUID EFFLUENT TREATMENT PROJECT - (\$3,400,000)

This project provides for the reduction and precipitation of chromium contained in RCW blowdown. Presently, the clarifier is 85% complete and the chemical treatment facilities LSSC are 3% complete. Estimated completion date is about July, 1976.

POLLUTION CONTROL PROJECT STATUS - PGDP - July, 1975 - (continued)

V. C-404 SOLID RADIOACTIVE WASTE PIT

Further work to reduce the leaching of uranium is being considered. Uranium discharges have been reduced by 98% since 1973.

VI. C-611 LAGOON #2 - Complete

VII. WATER QUALITY MONITORING STATIONS

This project has not yet been authorized.

VIII. PARTICULATE EMISSION CONTROL

A. C-405 Incinerator - Final cost estimates are being prepared for scrubber modifications.

B. C-600 Electrostatic Precipitators - Estimated completion date is June, 1979.

IX. C-615 SEWAGE TREATMENT PLANT

Replacement of the collection system has been delayed by a construction strike. The repairs should be completed by August 15, 1975.

Replacement of the C-600 trickling filter media with plastic cylinders having a high surface area/volume ratio is scheduled for FY 1976. This should increase the BOD₅ removal efficiency.

Attachment IV

STATUS OF POLLUTION CONTROL PROJECTS AT HNL

July 1975

1. The main sanitary sewage treatment plant project has been completed. A number of problems have been encountered. The plastic liner in one of the sewage ponds floated to the top as a result of gas bubbles underneath. The liner apparently was breeched, allowing digesting sewage to get underneath and create gas bubbles. No solution to the problem has been determined at the present time. Additionally problems of compliance with several NPDES Permit parameters have been encountered.
2. The chromate removal project for HFIR cooling tower blowdown is in progress. Cost estimates for installation of chromate removal equipment have escalated excessively. Change to a non-chromate corrosion inhibitor is under study.
3. Priority is being given to funding for the previously proposed pH neutralization or equalization basin project.
4. Addition of three pH monitors nearer plant facilities is planned to provide early detection of acid leaks.
5. The Process Waste Treatment Plant for radioactive effluents is nearing completion and should be in operation this fall.
6. Studies of the HNL Burial Ground leakage are continuing. Alternative corrective measures are being considered but no recommendations for action have been made.

Attachment V

STATUS OF POLLUTION CONTROL PROJECTS - Y-12 PLANT

July 1975

1. The denitrification plant equipment is now being installed. The project is on schedule and the plant should commence operation about June 1976.
2. The cooling tower chromate projects are complete. Towers have been changed to a non-chromate corrosion inhibitor. Removal of chromates from blowdown has resulted in growth of a filament-type grass in New Hope Pond which has caused pH problems. Alternative solutions to controlling growth of the grass are under study.
3. The aerator has been installed in New Hope Pond and is now operating to increased dissolved oxygen content of New Hope effluent.
4. Preliminary engineering has been completed for two HF scrubbers planned for installation in the 9212 and 9206 complexes. Discussions are planned between Y-12 Development personnel and Paducah and Portsmouth operating personnel regarding operating experience with this type scrubber.

AGENDA

UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING

November 20, 1975 - 9 a.m.

Oak Ridge

1. Current Problems (Violations) of NPDES Permits and Forseeable Future Problems - Each Installation
2. Long Range Environmental Protection Needs - Each Installation
3. Quality Assurance Documentation - Each Installation
4. Fluoride Sampling and Analysis - S. S. Stief
5. Environmental Noise Measurements - Each Installation
6. Pollution Control Projects - Status - Each Installation
7. Items of Note - Each Installation

RGJ:cm

11/4/75

This document has been reviewed for classification and has been determined to be UNCLASSIFIED.
<i>Sara L. Welch</i>
ADC Signature
<i>4/13/95</i>
Date

Distribution:

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J. M. Case	I. G. Speas
P. C. Fournery	S. S. Stief
C. C. Hopkins	P. R. Vanstrum
J. C. Little	R. A. Winkel
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Oak Ridge K-25 Site

UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING

November 19, 1975

Distribution

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UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING

November 19, 1975

The UCC-ND Environmental Monitoring and Protection Committee convened on November 19, 9:00 a.m. in Oak Ridge. Those in attendance were H. H. Abee, R. C. Baker, E. E. Beauchamp, R. G. Jordan, V. G. Katzel, E. Roberts, I. G. Speas, C. L. Stair, S. S. Stief, and E. J. Witkowski. E. J. Barber, T. Kwasnoski, and C. W. Weber of the ORGDP Analytical Laboratory attended part time. J. F. Wing, ERDA Environmental Protection Branch, was a guest at the meeting.

Current Problems (violations) of NPDES Permits and Forseeable Future Problems

E. J. Witkowski reported three areas of NPDES noncompliance at ORNL. Violation of the chromium limits are continuing as a result of cooling tower operations. The corrosion inhibitor at the HFIR cooling tower has been changed to phosphonates, but some residual chromium is still being discharged in the blowdown. The use of phosphonates has resulted in the accumulation of a gelatinous material on the heat exchanger tubes which is reducing the heat transfer capabilities somewhat. Betz, the cooling tower treatment consultant, is investigating the problem and hopes to provide a solution. If a solution cannot be found and the tower must be returned to a chromium inhibitor, it is estimated that an expenditure of approximately 1.5 million dollars will be required to install chromium removal equipment to bring blowdown releases into compliance.

The new sewage disposal plant is still not in compliance. The plastic liners of the aeration ponds have been sunk; the ponds are now at full volume and back in operation. NPDES limits for all items except ammonia nitrogen are currently being met. No corrective action could be obtained from the construction contractor; therefore, ORNL plans to install larger motors on the aeration bubblers to provide more air to the ponds. If this does not provide sufficient air for correction, additional bubblers will be installed in the ponds.

Noncompliance with pH limits in White Oak Creek continues to be a problem. The source of the problem appears to be regeneration of the steam plant and ORR demineralizers. Current plans call for installation of a lime equalization system for the steam plant effluent in the old low level radioactive waste treatment plant which will be taken out of service when the new Process Waste Treatment Plant goes on line. A small equalization system is planned for the ORR demineralizer effluent. It is estimated that an expenditure of about \$150,000 will be required to correct the situation. Planned installation of three additional pH monitors in the creek (estimated cost approximately \$9000) will be considered in the next budget review. These monitors would provide for early detection of future pH problems.

A permanent dump area for construction contractor waste is under design. Garage and paper trash are going to the Y-12 sanitary landfill.

S. S. Stief stated that an apparent violation of the chromium limit in the K-1007-B holding pond effluent occurred in October. The cause was postulated to be probably due to the release of recirculating or fire water to the holding pond. Investigation revealed, however, that an error in the analytical calculation was the cause of the high value after a follow-up sample revealed the chromium concentration to be nondetectable.

The pH of the effluent from the K-710 sewage plant was in noncompliance for a period of four hours in September. The low pH value resulted from problems with the regulation and operation of the chlorination system which uses chlorine gas for chlorination. Consideration is being given to the installation of a non-gas chlorination system.

An increase in the pH in the 901A holding pond was experienced in September and was attributed to natural causes. Currently the pH in the holding pond is within established limits.

Mr. Stief reported that a work order has been written for the installation of a new effluent sampling station at the sanitary water plant.

E. Roberts stated that no NPDES violations have occurred at the Y-12 plant since the end of September.

R. C. Baker reported that NPDES violations were predominately associated with the sewage treatment plant and sanitary water plant effluents. The BOD₅ limit was exceeded in the sewage plant effluent during the period of repairs to the mechanical collectors in the primary and secondary basins. Also, during one period, the fecal coliform limit was exceeded because the effluent could not be chlorinated while the secondary basin was being bypassed for repair. Repairs to the mechanical collectors have been completed and the effluent from the sewage plant should be in compliance in the future.

The pH limit of 10 was exceeded in the effluent from water treatment plant lagoon No. 2 during the months of July and August. The discharge source causing the pH noncompliance was the C-611 U chemical feed building floor drains. Lime and soda ash dust are routinely washed into the floor drains. Also, lime slurry and soda ash feed tanks can occasionally overflow into the floor drain system. This situation was corrected by pumping the C-611 U floor drain effluent into the softener and eliminating the high pH floor drain discharge.

The suspended solids limit for the water treatment plant effluent was out of compliance due to filter backwashing while lagoon No. 1 was out of service for cleaning. The lagoon was returned to service on November 7, and this problem should be corrected.

Mr. Baker noted that the pH of the water from the filter plant is normally about 9.5 due to the softening process used in treatment; thus, almost any addition of basic material can raise the pH of the effluent above a pH of 10. Occasional violations of effluent limits may still occur until some type of recycle system is installed on the plant.

R. G. Jordan expressed management's concern regarding the numerous violations which have been occurring at the UCC-ND operated facilities. J. F. Wing stated that some violations were expected by EPA since the EPA policy on issuing Permits is to set limits sufficiently low so that occasional violations occur. If no violations occur, the Permit limits, according to EPA philosophy, are not set low enough.

Long Range Environmental Protection Needs

A number of potential long range environmental protection needs have been identified at the gaseous diffusion plants and at Y-12. Final determination of actual needs are contingent upon regulatory interpretations, possible promulgation of new regulations, and the efficiency of operation of pollution control projects currently under construction. Some of the potential problems are associated with liquid and airborne fluoride emissions, steam plant emissions, sanitary sewage treatment, liquid effluents containing nitrates and organics, cooling tower effluents, and phase-out of the S-3 acid waste ponds. More detailed treatment of the possible long range needs are set forth in the following documents:

1. Paducah Report No. KY-B-182 (internal), Long Range Planning - Environmental Protection, January 9, 1975.
2. Letter from S. S. Stief to J. A. Parsons, Environmentally Related Items Proposed for Inclusion in the Budgeting Cycle, October 21, 1975.
3. Letter from J. M. Case to H. D. Hickman, Future Use of the S-3 Pond October 21, 1975.
4. Long Range Pollution Control Projects for Y-12, M. Sanders to J. A. Parsons.

Quality Assurance Documentation

C. L. Stair reported that quality assurance documentation of the ORGDP environmental sampling and analysis program is essentially complete except for air sampling procedures which should be completed in about two weeks.

E. Roberts stated that a basic quality assurance plan for the Y-12 environmental program has been prepared and documentation of detailed procedures are in progress. These procedures should be completed in the next several months.

R. C. Baker stated that Paducah is following the action plan for quality assurance documentation which was developed several months ago. Sampling and analytical procedures are in preparation. The documentation effort is about on schedule and should be completed during the month of January.

E. J. Witkowski stated that several different groups at ORNL were involved in quality assurance documentation. The Health Physics Division is in the process of documenting environmental monitoring quality assurance and procedures. An outline and schedule for completion was issued in October and

the work is progressing on schedule. Inter- and intra-laboratory comparison programs have been started.

Effluent monitoring quality assurance is being prepared by E. E. Beauchamp of the Operations Division. Mr. Beauchamp stated much of the effluent monitoring quality assurance is documented in the current operating manual. Those items not covered will be prepared and included in the manual. A quality assurance plan will be prepared which will include the manual by reference. Mr. Witkowski noted that the Analytical Chemistry Division is preparing a manual covering analytical procedures which should be completed by the first of the year.

Fluoride Sampling and Analysis

C. W. Weber discussed the difficulties associated with sampling and analysis of fluorides in the part-per-billion range, which is orders of magnitude below the level normally required in sampling and analyzing fluorides for occupational personnel protection. Some of the problems include obtaining a sufficient quantity of fluoride in the sample for valid analysis, interference of other materials in the sample, and interference from environmental conditions which may exist in the laboratory during analysis.

T. Kwasnoski described the Boyce-Thompson sampling technique currently in use at ORGDP and the analytical procedures used in analyzing the samples. The laboratory has compared specific ion electrode and colorimetric analytical techniques and the results suggest that the specific ion electrode technique may be less sensitive to interference from other material in the sample. Mr. Kwasnoski discussed the ORGDP studies comparing the Boyce-Thompson and the Paducah treated filter paper sampling techniques. Preliminary data indicate that the filter paper technique may not be trapping the fluorides at the low concentration levels being sampled. It was suggested that the intake face velocity at the filter paper was perhaps 40% greater than that used at Paducah due to pump sampling rate and filter paper size, thereby limiting the reaction time between the fluorides and the treated filter paper. Further tests using larger filter paper and lower intake velocities will be conducted in collaboration with Paducah laboratory personnel to clarify the uncertainties associated with the testing program.

C. L. Stair discussed a series of diffusion calculations which were made to determine the relationship of potential fluoride concentrations at the ORGDP boundary resulting from releases of fluorides from the ORGDP Steam Plant, the ORGDP Purge Cascade, the Kingston Steam Plant, and the Bull Run Steam Plant. While the diffusion model and diffusion parameters used in the calculations may not represent the actual conditions, the calculations provide a common basis for predicting the maximum potential at ORGDP boundary sampling stations. Results of the study indicate that contributions from the ORGDP Steam Plant to ambient fluoride concentrations would not be significant. The Purge Cascade has the potential to contribute about 51% to the ambient concentrations, while the remainder could be the result of Kingston and Bull Run Steam Plant emissions. A report of the study is in preparation.

Environmental Noise Measurements

C. L. Stair reported that noise level measurements were made in the environment of ORGDP. Approximately 325 readings were taken inside the plant perimeter fence and 125 were taken outside the perimeter fence, within a four-mile radius of the plant. Measurements were made with a standard sound level meter using the C-weighted scale and sound level contours were calculated and plotted for each 5 decibel (dB) interval. The highest level recorded at the plant perimeter fence was about 78 dB. A report of the study was issued in September. Mr. Stair stated that several comments were received which suggested the A-weighted scale should have been used rather than the C-weighted scale. Additional measurements were made at some of the original locations to compare the A-weighted and C-weighted sound levels. The result indicated that the A-weighted levels appear to be about 15 percent lower than the C-weighted levels.

R. C. Baker reported that a number of noise measurements have been made in the environment of the Paducah Plant, both at the fence line and at distances further out. The results were not completely satisfactory, however, and additional measurements are planned. Mr. Baker suggested that both A-weighted and C-weighted measurements should be made.

E. Roberts stated that no environmental noise measurements have been made at the Y-12 Plant.

E. J. Witkowski reported that environmental noise around ORNL appeared to be minimal and that no measurements have been made.

J. F. Wing discussed the problem of continuing encroachment on plant buffer zones, particularly at the gaseous diffusion plants, and suggested that noise may be another parameter of significance to be considered when evaluating requests for utilization of buffer zone land.

Pollution Control Projects - Status

Pollution control projects currently in progress at each of the four installations were discussed. Summaries of the pollution control project status are included as attachments.

Items of Note

J. F. Wing discussed the background leading to a meeting on November 18 with EPA Region IV in Atlanta regarding conversion of two boilers of the PGDP Steam Plant to the burning of coal and oil. The issue began in October when the State of Kentucky requested the EPA to initiate legal action against ERDA for commencing to operate a new source in violation of emission standards. EPA subsequently advised the State of Kentucky that EPA had no authority to take legal action against a federal facility, but intended to enter into a consent agreement with ERDA on the matter. The consent agreement would establish a public commitment to bring the facility into compliance with emission standards by some predetermined date if funds are made available by Congress.

The State was advised that a meeting would be held on November 18 in Atlanta to resolve the issue. Mr. Wing stated that the State was not represented at the meeting and a December target date was established for finalizing the consent agreement.

Mr. Wing stated that every effort should be made to prevent radioactive material from being placed in sludge lagoons being constructed as part of pollution control projects at several of the installations, e.g. sludge lagoons of chromate removal projects. The presence of radioactivity in lagoons of this type could negate future reclamation of valuable materials from sludge lagoons.

Meeting Schedule

The next meeting of the Committee will be held in March 1976. The exact date will be determined later.


R. G. Jordan

RGJ:HHA:cm

Attachments

Attachment I

STATUS OF ORGDP POLLUTION CONTROL PROJECTS

November 19, 1975

1. Large Sewage Plant

Excavation for the main lift station is currently underway, while the power center is being assembled and the sanitary water line is being installed. The concrete pad for the transformer has been poured but further concrete work will be dependent upon the weather. The construction is approximately 15% complete versus 45% scheduled.

2. Small Sewage Plant

Construction is complete and the plant is now in the initial stages of operation. The reduction of BOD and suspended solids looks good but some problems have been encountered with the chlorination system. Efforts are currently underway to correct this problem.

3. Neutralization Facilities

The conveyor system for the lime feeding system has been installed while the installation of the discharge system and electrical control panel is in progress. The work is approximately 93% complete versus 100% scheduled.

4. Containment of Oil and Hazardous Materials

The project is now out for bid. Based on the preliminary A-E cost estimates and on the fact that the engineering costs have greatly exceeded the budgeted values, it appears that sufficient funding for the entire project is not available. Currently, it is planned to proceed with the HF tank farm modifications as scheduled and to complete the remainder of the project with FY-77 funds.

Attachment II

STATUS OF POLLUTION CONTROL PROJECTS - ORNL

November 1975

1. The main sanitary sewage plant aeration pond liners have been sunk and the ponds are back in operation. Problems still exist with meeting ammonia (N) and BOD₅ effluent limits due to insufficient aeration capacity. Plans to increase capacity include increasing blower capacity and installation of additional bubblers.
2. A non-chromate corrosion inhibitor has been placed in the HFIR cooling tower and is undergoing testing. An accumulation of a gelatinous material on the heat exchanger tubes has been found which reduces heat transfer capabilities. The cooling tower consultant is investigating the problem.
3. Priority is being given to funding for modification of the old radioactive waste treatment plant to provide neutralization of high pH effluent from the steam plant demineralizer regeneration. A small equalization facility is being considered for the ORR demineralizer effluent.
4. The New Process Waste Treatment Plant is complete and equipment is being tested and calibrated.
5. Studies of the ORNL Burial Ground leakage are continuing. No additional recommendations for corrective action have been made.

Attachment III

NOVEMBER, 1975

POLLUTION CONTROL PROJECT STATUS - PGDP

I. AIR POLLUTION

A. C-600 Electrostatic Precipitators - (\$3,000,000 FY1976 Line Item)

Cost will be increased to \$3,700,000 if precipitators are designed for low sulfur coal. Estimated completion date is June, 1979.

B. C-600 SO₂ Compliance - Present plans are to utilize low sulfur coal. If Kentucky compliance schedules are followed, modification to the coal yard (\$125,000) and purchases of coal handling equipment (\$64,000) may be necessary.

C. C-405 Incinerator Scrubber - (\$18,100 FY1976 Capital Equipment)
Modifications to the incinerator scrubber are necessary to meet emission standards. The incinerator will not be operated until modifications are complete. Expected completion date is October, 1976.

D. C-420 H₂ Vent Scrubber

This project has been plagued with equipment and instrumentation problems. Modifications are now being made to the scrubber overflow line and a flowmeter is being installed on the scrubber inlet line.

II. WATER POLLUTION

A. Chromium

1. Liquid Effluent Treatment Project* - (\$3,400,000)

This project provides for the reduction and precipitation of chromium contained in RCW blowdown. Presently the clarifier is 98% complete and the chemical feed building is 23% complete. Estimated completion date is about July, 1976.

2. Filter Wash Chromium Abatement* - (\$300,000)

Chromium discharges from process building air intake filter washing will be eliminated by providing sanitary water. Chromated RCW is currently used to wash the filters. This item is being submitted as a FY 1976 GPP.

3. Fire Test Tie Lines* - (\$83,000)

Tie lines will be installed between the RCW system and fire-water lines to eliminate 200 pounds per year of chromium normally discharged during C-factor and pump tests. This item is being submitted as a FY 1976 GPP.

B. Fluoride

1. C-420 HF Vent Scrubber* - (\$37,000)

Replaces existing water scrubber with a two stage venturi scrubber that will produce a saleable HF solution. This item is being submitted as a FY 1977 capital equipment item.

2. C-410 F₂ Cell Electrolyte Neutralization Facility*

The cell turning fixture will be relocated adjacent to the C-410 Neutralization Pit to provide removal of fluoride by lime precipitation. This project is being submitted as a FY 1976 GPP.

3. C-410, C-420 Liquid Effluent Control* - (\$118,000)

Elimination of excess flows, lime feed systems improvements, and modifications to the settling pit will increase fluoride removal efficiency. This project is being submitted as a FY 1977 capital equipment item.

C. Suspended Solids

1. C-611 Sludge Lagoon Recycle* - (\$400,000)

The effluent from the C-611 Water Treatment Plant Lagoons will be recycled to the raw water line.

2. Sludge Lagoon Dredge* - (\$105,000)

A "Mudcat" or similar dredge will be needed for future lagoon cleaning. Present techniques cause suspended solids limits to be exceeded during cleaning. This item will be submitted as a FY 1977 capital equipment item.

D. pH Control and Miscellaneous

1. C-616 Effluent pH Control* - (\$78,000)

Adjustment of pH at the lagoon effluent will provide compliance with the 6.0 - 9.0 pH limitations. This project will be submitted as a FY 1977 GPP.

2. C-600 Effluent Control* - (\$100,000)

Coal pile runoff and flyash scrubber discharges will be pumped to the diversion ditch which will discharge into the C-616 Lagoon. Oil from the C-600 air compressors will be collected at the source. This project is being submitted as a FY 1976 GPP.

E. Spill Prevention and Monitoring

1. HF Liquid Flow Limit - (\$28,000)

This project provides automatic valves to prevent flow of HF if a leak occurs in the piping system connecting the C-410 tank farm, loading dock, and C-410 and C-420 vaporizers. This project should be completed by December 31, 1975.

2. Drainage Ditch Flow Control - (\$9,600)

This project provides a spill control trailer equipped with pipe stoppers, oil absorbent, skimmer, etc.
Completed November, 1975.

3. Water Quality Monitoring Stations

Continuous monitoring and recording of flow, pH, temperature, dissolved oxygen, and conductivity will be provided on both creeks. Completion date is October, 1976.

*Projects required by NPDES permit.

Attachment IV

STATUS OF POLLUTION CONTROL PROJECTS - Y-12 PLANT

November 1975

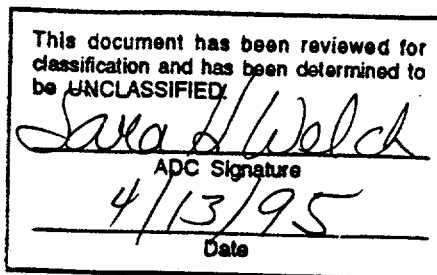
1. The acid waste recycle and biodenitrification plant project is proceeding on schedule and should be available for start-up during the spring of 1976.
2. Funds have been approved for a project to reduce radioactive effluents from Third Mill, Building 9215.

UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING

March 4, 1976

H. H. Abee
R. C. Baker
J. A. Barker
J. C. Barton
F. R. Bruce
J. M. Case
F. L. Culler, Jr.
D. M. Davis
A. K. Edwards
P. C. Fournay
R. F. Hibbs
C. C. Hopkins
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J. J. Vogt
W. J. Wilcox, Jr.
R. A. Winkel
E. J. Witkowski
File (NoRC)



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to the public by:

Steven J. Smith
Technical Information Officer
Oak Ridge K-25 Site

4/28/95
Date

UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING

March 4, 1976

The UCC-ND Environmental Monitoring and Protection Committee convened on March 4, 1976, 9:00 a.m., in Oak Ridge. Those in attendance were H. H. Abee, R. C. Baker, M. C. Conrad, D. G. Jacobs, R. G. Jordan, J. C. Little, M. E. Mitchell, T. W. Oakes, M. Sanders, and I. G. Speas. J. K. Alexander and J. F. Wing, ERDA Environmental Protection Branch, were guests at the meeting.

ERDA Operating Limits for Quantities or Concentrations of Radioactive Materials Released

H. H. Abee stated that during last year's ERDA Environmental Management Appraisal of ORGDP, the establishment of operating limits for releases of radioactive materials was mentioned by Mr. H. W. Hibbitts of ORO. The subject of operating limits is set forth in Manual Chapter 0511, Radioactive Waste Management, which states ... "Managers of Field Offices: d. maintain suitable approval control over key waste management decisions of operating contractors, such as the establishment or major modification of: (1) operating limits for quantities or concentrations of radioactive materials released to the environment." While this activity normally would be a function of the ORO Waste Management Branch, Mr. Hibbitts stated that Waste Management has asked the Environmental Protection Branch to implement this requirement.

Mr. Abee noted that, while this subject was not discussed in the ORGDP appraisal report, a request for establishment of operating limits could be anticipated some time in the future. Later discussions with Mr. Hibbitts indicated that the Environmental Protection Branch interprets operating limits to be administrative reporting limits which are set at some point above the normally experienced average discharge levels. Mr. Wing concurred with this interpretation and expressed ORO's need for more rapid notification of above normal release levels than is currently available through normal reporting mechanisms.

Mr. Abee requested that each installation examine past releases, prepare suggested administrative reporting limits for radioactive releases, and submit suggested limits to the UCC-ND Safety and Environmental Protection Office for review and concurrence with the ORO Environmental Protection Branch. A range of 2 to 10 times the average release level, depending upon the hazard of the material released and the normal fluctuations experience for a given time period, was suggested as a criterion for setting administrative reporting levels.

Quality Assurance Documentation Status

M. Sanders reported that a quality assurance plan has been prepared for the Y-12 monitoring program. The plan was reviewed by Y-12 Quality Assurance personnel, audited by ORO Quality Assurance auditors, approved, and

issued as a standard procedure. The Y-12 laboratory has documented quality control procedures and the environmental monitoring group has documented sampling procedures.

M. E. Mitchell stated that ORGDP has completed documentation of sampling procedures, analytical procedures, and quality control parameters. ORGDP will prepare a quality assurance plan similar to the Y-12 plan in the near future.

M. C. Conrad reported that all sampling and analytical procedures associated with the PGDP monitoring program have been documented and incorporated into an "Environmental and Effluent Sampling & Analysis Manual." The manual is currently undergoing review by the PGDP quality assurance coordinator. Development of a quality assurance plan similar to the Y-12 plan is in progress.

E. J. Witkowski noted that the ORNL quality assurance documentation was being done by two groups. Health Physics is preparing the environmental monitoring portion and the Operations Division is preparing the effluent monitoring portion.

T. W. Oakes stated that an outline has been prepared for the environmental monitoring quality assurance program. Two documents will be prepared; a procedures manual and a quality assurance report. Work is progressing on both documents with a projected completion date of September 1.

E. J. Witkowski noted that a large amount of quality assurance documentation was currently incorporated in the Operations Division's operating procedures. Plans are to pull this information together, add new information, and update present procedures where required. Mr. Witkowski stated, however, that little progress has been made in this regard since the last Committee meeting due to inadequate manpower.

J. F. Wing expressed an ERDA concern regarding the reliability of air monitoring data for fluorides. Although considerable work has been done on this matter at the gaseous diffusion plants, ERDA has approached members of the ORNL staff regarding investigation of fluoride sampling and analytical techniques. Mr. Wing stated that the assessment of the impact of fluoride releases on vegetation incorporated into the add-on diffusion plant draft impact statement appeared to be exaggerated, which added to ERDA's concern regarding the reliability of data. Mr. Wing distributed a proposal by the ORNL Environmental Sciences Division for investigation of sampling techniques and analytical methods for fluorides in the environment. He stated that the purpose of the proposed investigation was not to develop a standardized sampling and analytical technique but to determine a family of techniques which will produce reliable data.

Report on Inter-Comparison Sample Analysis Program

For the past year, a laboratory analysis inter-comparison study has been in progress between ORGDP, PGDP, and Y-12 on the analysis of water and soil samples. The parameters analyzed were chromium, nitrates, and uranium in water and uranium in soil. The latest results were distributed for review and are attached. In general, the comparative results were more consistent than those last reported; however, some inconsistencies still appear to be present in the nitrate analyses. H. H. Abee suggested that these results be provided to each of the participating laboratory groups for review.

ORNL Health Physics representatives expressed a desire to participate in the soil sample exchange program for the analysis of uranium. B. G. Bowers of the Y-12 Environmental Monitoring Group should be contacted regarding details of the sample exchange program.

Environmental Monitoring Report Status

H. H. Abee reviewed the schedule and lead time required for issuing the annual Environmental Monitoring Reports specified by ERDA Manual Chapter 0513. Draft material should be transmitted to the Safety and Environmental Protection Office by March 15 in order to meet the schedule dates.

M. Sanders reported that the Y-12 data for inclusion in the Oak Ridge report has been compiled and the text material, including data interpretation, is being prepared. All Y-12 information to be included in the report should be available in another week.

M. E. Mitchell stated that the ORGDP material for the report has been compiled and will be available by March 15.

T. W. Oakes reported that dose calculations have been completed and the ORNL material should be available by March 15 with the exception of data on specific radionuclide analysis of air filters which will be delayed for several days.

M. C. Conrad presented a first draft of the Paducah report for discussion. A number of suggestions for changes in the draft were made. Mr. Conrad will incorporate these suggested changes and submit the draft for review by March 15.

Impact of Proposed EPA Regulations on Hazardous Substances

Considerable discussion ensued regarding the proposed regulations with the consensus that the regulations are unclear on a number of points. No time period limitation over which the release might occur is specified in defining a spill. There appears to be some disparity in hazardous quantities specified for release limits. Liability for penalties associated with spill situations appears to need clarification. These unanswered questions make the assessment of impact difficult at the present time. H. H. Abee suggested that each installation should survey their facilities in regard to hazardous substances spill potential since spill prevention and countermeasure plans will undoubtedly be required in the near future.

Pollution Control Project Status

Pollution control projects currently in progress at each of the four installations were discussed. Summaries of the pollution control project status are included as attachments.

Items of Note

M. C. Conrad reported that a number of new static capacitors which were installed in the electrical switch yards at Paducah have failed. Several capacitors ruptured upon failure and sprayed pyranol (PCB) over an approximate 20 ft. diameter area. Cleanup, using sorbent material and other techniques, has been attempted. Considerable difficulty has been experienced with cleanup due to the fine nature of the spray from the rupture.

Mr. Conrad stated that Paducah is now using flow weighted averaging for effluent parameters and, with concurrence from ORO Environmental Protection Branch, is now sampling sewer plant effluent for BOD₅ after chlorination.

M. E. Mitchell raised the question of the proper disposal method for mercury vapor lamps. The suggested procedure was to collect the lamps, break them under water in a 55 gallon drum, allow the mercury to accumulate in the bottom of the drum, and collect the mercury for redistillation and reuse. Disposal of mercury vapor lamps in the sanitary land fill should be discontinued.

Mr. Mitchell requested guidance from the ORO Environmental Protection Branch representatives on the expediency and extent of biota sampling needed in Poplar Creek with regard to potential mercury contamination from mercury contained in the sediments. Mr. Wing stated that the Environmental Protection Branch would consider the problem and provide guidance on the scope of the sampling program in a few weeks.

H. H. Abee distributed copies of ERDA budget assumptions for Environmental Control, OSHA, and Energy Conservation planning, and copies of information from the Environment Reporter concerning amendments to the Clean Air Act which relate to federal facilities.

Meeting Schedule

The next meeting of the Committee will be held in Paducah on July 14, 1976.


R. G. Jordan

RGJ:HHA:cm

Attachments

ATTACHMENT I

Y-12 WATER SAMPLE (EAST FORK POPLAR CREEK)

<u>Analysis</u>	<u>Y-12 Lab</u>	<u>K-25 Lab</u>	<u>PGDP Lab</u>
Chromium	< 0.01 mg/l	< 0.05 mg/l	0.04 mg/l
Nitrates	14 mg/l	5.53 mg/l	15 mg/l
Uranium	0.091 mg/l	0.09 mg/l	0.17 mg/l

K-25 WATER SAMPLE

<u>Analysis</u>	<u>Y-12 Lab</u>	<u>K-25 Lab</u>	<u>PGDP Lab</u>
Chromium	.94 mg/l	0.8 mg/l	0.69 mg/l
Nitrates	19 mg/l	11.06 mg/l	22 mg/l
Uranium	.0275 mg/l	.03 mg/l	0.07 mg/l

PGDP WATER SAMPLE

<u>Analysis</u>	<u>Y-12 Lab</u>	<u>K-25 Lab</u>	<u>PGDP Lab</u>
Chromium	0.25 mg/l	0.3 mg/l	0.28 mg/l
Nitrates	23 mg/l	15.49 mg/l	22 mg/l
Uranium	0.57 mg/l	1.0 mg/l	0.77 mg/l

CONTROL WATER SAMPLE*

<u>Analysis</u>	<u>Y-12 Lab</u>	<u>K-25 Lab</u>	<u>PDGP Lab</u>
Chromium	1.38 mg/l	1.5 mg/l	1.3 mg/l
Nitrates	53 mg/l	60.2 mg/l	49 mg/l
Uranium	1.855 mg/l	1.54 mg/l	1.61 mg/l

*Control samples were prepared by the Y-12 Laboratory and were spiked with concentrations as follows:

- 1) Chromium - 1.5 mg/l
- 2) Nitrates - 50 mg/l
- 3) Uranium - 1.75 mg/l

Y-12 Soil Sample

<u>Analysis</u>	<u>Y-12 Lab</u>	<u>K-25 Lab</u>	<u>PGDP Lab</u>
Uranium	36.0 $\mu\text{g/g}$	11.4 $\mu\text{g/g}$	12.6 $\mu\text{g/g}$

K-25 Soil Sample

<u>Analysis</u>	<u>Y-12 Lab</u>	<u>K-25 Lab</u>	<u>PGDP Lab</u>
Uranium	3.38 $\mu\text{g/g}$	1.80 $\mu\text{g/g}$	3.5 $\mu\text{g/g}$

PGDP Soil Sample

<u>Analysis</u>	<u>Y-12 Lab</u>	<u>K-25 Lab</u>	<u>PGDP Lab</u>
Uranium	3.69 $\mu\text{g/g}$	2.18 $\mu\text{g/g}$	4.1 $\mu\text{g/g}$

*PGDP Laboratory results are incomplete at this time

ATTACHMENT II

Y-12 POLLUTION CONTROL PROJECTS

Changehouse, Building 9998 - FY 1976 - FY 1977

\$200,000

This changehouse is used by personnel who work in enriched uranium areas. Personnel wearing contaminated work clothing and shoes and others wearing personal clothing and shoes intermingle in the same area. This has resulted in contamination levels in excess of the control criteria in the changehouses proper and in personal clothing lockers. The present changehouse design is only marginal as a satisfactory interface between the public and the plant. The renovation will allow a separation of the changehouse into a "clean" and a "dirty" zone. This will reduce the possible occurrence of a contamination incident involving families or homes. Changehouses serving enriched uranium workers will, therefore, be modified on a program basis to provide the following features.

- a. An uncontaminated area to change from and to personal clothing.
- b. Uncontaminated lockers for personal clothing and belongings.
- c. Showers between the clean and dirty areas.
- d. A separate area and storage for work clothing.

Environmental Monitoring FY-1977

\$ 10,000

The capabilities of the Oak Ridge Y-12 Plant Monitoring System in the Plant Shift Superintendents' (PSS) office, Building 9706-2, will be further utilized to include monitoring and reporting services for atmospheric SO₂ detectors.

Grounds Improvement and Drainage FY-1977

\$ 75,000

This work is a part of the recurrent and continuing grounds improvement and drainage program. The plant is 30 years old and deterioration of drainage structures, curbs and gutters, and concrete sidewalks make it necessary to replace them on a programmatic basis. In some sections the metal pipe is corroded to the point of failure. Sections of concrete sidewalks, curbs and gutters in certain areas of the plant should be replaced as the surface has spalled due to freezing and thawing action. Such sections are hazardous to walk on and cause ponding of water in the gutters. Installation of new curbs and gutters is necessary to effect erosion control and facilitate maintenance on some street sections.

Sump Drain System FY-1977

\$ 50,000

The pits in Building 9215 under the Third Mill and associated with the interline shear collect depleted uranium oxide, thorium oxide, lithium compounds, sodium carbonate slat, iron oxide, fire-resistant hydraulic fluids, greases, waste paper, floor dirt, and water used to cool plates or wash down the equipment. This debris forms a sludge on the pit floor, and the water flows over it to a sump whence it is pumped to a storm sewer. The water then carries oils lighter than water, oils heavier than water, entrained uranium oxide, and uranium compounds. In order to obviate the pollution source, a system of skimmers will be installed to restrain the pollutants, which can then be periodically removed for burial.

Replace Drain Line, 9401-2, FY-1977

\$ 50,000

The present 9401-2 Plating Shop has a brick floor under the chemical plating tanks which catches all spilled chemicals such as acids, caustics, and plating solutions. A sump in this floor collects the liquids and automatically pumps them to an outside holding tank. Whenever this happens, the tank is sampled and, if practical, dumped into the holding pond. The original drain lines under the floor are so broken that during dry weather liquid chemicals from the floor leak out of the drain line polluting the ground water. During wet weather, the ground water leaks into the sumps, is pumped over to the holding tank, and requires unnecessary sampling and transfers. This problem has been worsening for several years and the line must be replaced.

Control of Air and Water Pollution, FY-1977

\$ 50,000

Continued implementation of new state and federal environmental standards requires a continuing effort to deal with pollution-related problems as they are identified. This item is an allowance to cover such currently unforeseen needs.

Utility Pole Replacement, FY-1978

\$ 75,000

The wooden pole utility line supports along Third Street south of 9204-3, 9204-1, 9201-1, 9201-2, and 9201-3 will be replaced with steel supports. This is Phase 6 of the program to replace all of these 30-year-old wooden supports. The existing wooden supports have been installed for approximately 30 years and have deteriorated to the extent that they are unsafe and unreliable. Should this project not be funded, there would be a possible interruption of steam, Z-oil, demineralized water, and other services to a

large section of the Plant. Also, large-scale contamination of the adjacent open creek could occur due to a Z-oil spill should a line rupture due to collapse of a wooden support. Hazard to personnel could also result from rupture of a steam line or other line containing hazardous material.

Grounds Improvement and Drainage, FY-1978

\$ 75,000

This work is a part of the recurrent and continuing grounds improvement and drainage program. The plant is 30 years old and deterioration of drainage structures, curbs and gutters, and concrete sidewalks make it necessary to replace them on a programmatic basis. In some sections the metal pipe is corroded to the point of failure. Sections of concrete sidewalks, curbs and gutters in certain areas of the plant should be replaced as the surface was spalled due to freezing the thawing action. Such sections are hazardous to walk on and cause ponding of water in the gutters. Installation of new curbs and gutters is necessary to effect erosion control and facilitate maintenance on some street sections.

ATTACHMENT III

STATUS OF PGDP POLLUTION CONTROL PROJECTS

March 4, 1976

1. C-616 Liquid Effluent Treatment Facility

Construction is 60% complete and completion is scheduled for June, 1976.

2. C-611 Treatment Lagoons

This project to meet 1977 NPDES requirements in the water treatment plant effluent is in the design stage. The project is being considered in two parts. First, the 1977 suspended solids limits will be met by the construction of a large lagoon. Second, pH limits will be met by recycling the effluent to the plant raw water line. The second part of the project may be delayed if EPA will raise pH limits to 10.0.

3. Other Projects to Meet 1977 NPDES Requirements

The following projects are planned for FY 1976:

C-616 Effluent pH Control	(pH control)
C-600 Effluent Control	(Treatment of coal pile runoff)
Filter Wash Chromium Abatement	(Chromium abatement)
Fire Test Tie Lines	(Chromium abatement)
C-410, C-420 Liquid Effluent Control	(Fluoride treatment)

4. Water Quality Monitoring Stations

Continuous measurement of flow, pH, temperature, conductivity, and dissolved oxygen will be provided on Big Bayou and Little Bayou Creeks. Completion is scheduled for October, 1976.

5. C-410 Hydrogen Vent Scrubber

Problems in startup are still being encountered. Plugging is occurring in the scrubber jets, scrubber inlet line, and drain line. The HF analyzer appears to be insensitive to HF concentrations. Work is continuing on correcting these problems.

ATTACHMENT IV

STATUS OF ORGDP POLLUTION CONTROL PROJECTS

March 1, 1976

1. Large Sewage Plant

Concrete foundation work for the plant has been completed. The steel components have been delivered and erection is scheduled to start the week of March 8, 1976. The project presently stands at 39% complete versus 96% scheduled. Both ERDA-ORO construction and the contractor are optimistic in their prediction that the April 15, 1976 completion date will be met.

2. Small Sewage Plant

Construction is complete and the plant is presently in operation. The chlorination problems which were being experienced during start-up have been corrected by the installation of a smaller chlorinator and more frequent manual inspections and adjustments.

3. Neutralization Facilities

This project is essentially complete with the exception of the tie-in from K-1413 and the installation of the oil skimmer. The operator has experienced some difficulty with the pH meter and liquid level alarm system which are installed in the neutralization pit; however, these problems should be alleviated in the near future.

4. Containment of Oil and Hazardous Materials

A directive modification has been submitted to ERDA requesting additional funds to complete this project as originally scheduled in 1976. ERDA is in the process of locating the additional monies which are needed.

5. Drum Cleaning and De-heading Facility

This project was originally submitted as a FY-76 GPP, and was arbitrarily shifted back to 1978. Engineering has been made aware of the pending deadline and the project has been resubmitted as a FY-77 GPP.

6. K-402-9 Purge Cascade Scrubber

Installation of the scrubber system is essentially 100% complete; however, start-up and operation have been delayed for approximately two months. This delay is necessary to make modifications which will permit compliance with OSHA and other applicable health and safety regulations.

7. Steam Plant Conversion and Particulate Removal

Bids on the ORGDP precipitators were opened on February 24, 1976. Two of the three bids were approximately \$795,000, the third being approximately \$59,000. Based on this information, it appears that the bids

7. Steam Plant Conversion and Particulate Removal (Cont'd)

were responsive and a contract will be awarded. Project money totaling \$2,000,000 for the four plants has been funded for FY-1976 and it appears that if procurement begins immediately ORGDP can still meet the installation deadline of October 1, 1977.

8. Sampling Station K-1515

Structural work, grating, walkway and handrails have been installed. Painting of metal, addition of rip-rap for stabilization, and fabrication and installation of weir plate are all that remains. It appears that there will be no difficulty in achieving compliance with the discharge permit requirements of July 1, 1976.

CLS:mj
3-3-76

ATTACHMENT V

STATUS OF POLLUTION CONTROL PROJECTS - ORNL

March 1976

1. A Dearborn non-chromate corrosion inhibitor similar to that used in the Y-12 cooling towers is currently undergoing tests in the HFIR cooling tower. If this corrosion inhibitor proves successful, all other towers at ORNL which are now using chromates will be changed to the non-chromate inhibitor.
2. The 7900 area sewage plant is still periodically out of compliance with BOD₅ and suspended solids permit limits. Indications are that failure to seed the plant with secondary sewage when it was installed may be the cause of the problem. Seeding with secondary sewage from the Oak Ridge Sewage Plant is scheduled for March 9.
3. The main sewage plant is still experiencing BOD₅ and ammonia nitrogen compliance problems. Probable solutions to the problem are being studied by Engineering. A decision as to the course of action to be taken to resolve plant operational difficulties will be made within another two weeks.
4. Plans are currently underway to convert the old radioactive process waste treatment plant to a neutralization facility for acid and caustic discharges to White Oak Creek from the steam plant and water demineralizer buildings. The project has encountered some administrative problems but engineering is now in progress. It is hoped that the project can be completed in time to meet the July 1, 1977 NPDES Permit pH limits in White Oak Creek.
5. The new radioactive Process Waste Treatment Plant is in the process of being activated. A reduction of about 40% in the ⁹⁰Sr discharged to White Oak Creek is anticipated when the facility is fully operational.
6. A work order has been issued to install three additional continuous pH monitors in the creeks, one in Melton Branch and one in White Oak Creek. These additional monitors should provide for early detection of accidental chemical releases to the Creeks.
7. A work order has been issued to General Engineering to make a complete study of the underground sewer system and flows through the system in an effort to reduce the volume of sewage and inleakage into the system to allow for laboratory expansion.

AGENDA

UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING

November 11, 1976 - 8:30 a.m.

Oak Ridge

1. Status of Fluoride Sampling Investigation - C. L. Buskirk
2. Mercury and PCB in Fish and Sediments - J. F. Wing
3. Status of State of Tennessee Compliance Monitoring Program - J. F. Wing
4. Administrative Reporting Limits - H. H. Abee
5. Rad Effluent and Environmental Monitoring Report Plans - H. H. Abee
6. UF₆ Air Emissions From ORGDP - M. E. Mitchell

→ 7. Ultimate Disposal of Tc-99 - Discussion - Each Installation →

8. Planning For Phase-out of PCB Usage - S. S. Stief →

9. PEM Scrap Disposition - Each Installation

10. Pollution Control Projects - Status - Each Installation

11. Items of Note - Each Installation

12. Three Million for Up Rating Monitoring, STORNL - Wayne Hibbites

the base does not rule out?
The use of closed system.
1/79 - No Manufacture on
1/78 -

Silicas can be used

RGJ:dvl

10/28/76

Distribution:

H. H. Abee	H. Postma
R. C. Baker	M. Sanders
J. M. Case	I. G. Speas
P. C. Fournery	S. S. Stief
C. C. Hopkins	P. R. Vanstrum
J. C. Little	R. A. Winkel
C. J. Parks	E. J. Witkowski
J. H. Pashley	

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This document has been reviewed for
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Sara H. Welch

ADC Signature

4/13/95

Date

This document has been approved for release
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Steven D. Smith
Technical Information Officer
Oak Ridge K-25 Site

4/5/95
Date

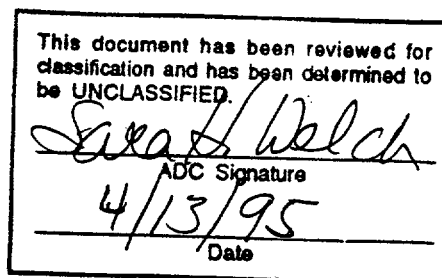
UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING

November 11, 1976

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Chris J. Smith
Technical Information Officer
Oak Ridge K-25 Site

4/6/95
Date

UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING

November 11, 1976

The UCC-ND Environmental Monitoring and Protection Committee convened on November 11, 1976, 8:30 a.m., in Oak Ridge. Those in attendance were H. H. Abee, R. C. Baker, J. C. Bailey, C. L. Buskirk, M. C. Conrad, R. G. Jordan, T. Kwasnoski, M. E. Mitchell, R. W. Morrow, T. W. Oakes, M. Sanders, S. S. Stief, and E. J. Witkowski. Invited guests to the meeting were H. W. Hibbitts and J. F. Wing from the ERDA-ORO Environmental Protection Branch.

Status of Fluoride Sampling Investigation

Mr. Kwasnoski presented a status report on the fluoride sampling evaluation program being conducted at ORGDP. The report covered a review of the test program format, sampling schedule, new data since the last report, typical data treatment, and data evaluation both at low concentration levels (<1 ppb) and high concentration levels (>1 ppb). Some random anomalies appear in the data for which there is no apparent explanation. The data collected to date was subjected to statistical analysis and error limits at the 95 percent confidence level were determined. Statistically significant differences were found among sampling periods but there were no statistically significant differences among plants. The estimated efficiency of the treated filter paper for collection of fluorides at low concentration levels was in the order of 50 percent. At high concentration levels the estimated collection efficiency was in the order of 85 percent.

Mr. Kwasnoski indicated that for the next period of sampling tests a slightly different sampling format would be used in which all treated filter papers used for the collection of samples would be prepared at ORGDP rather than by each participating installation. He also suggested that each installation select a routine sampling location and collect replicate samples to provide data unique to that installation which could be factored into the test program. The Committee concurred with this suggestion. Mr. Mitchell suggested that following collection of data at each installation the data from each installation might be plotted to provide a collection efficiency curve from which correction factors for application to raw data could be obtained.

Mr. Stief noted that the treated filter paper data appeared to be as good as the bubbler sampler data and considering the operational advantages of using treated filter paper for sampling proposed changing to the filter paper sampling technique at ORGDP.

Mercury and PCB In Fish and Sediments

Mr. Wing briefly reviewed the potential problem of mercury and PCB in fish and sediments in Poplar Creek. The PCB data is somewhat minimal at present and the exact locations at which sampling was conducted for previous samples is not well known. Mr. Wing stated that no decision on a

course of action would be made until all the data had been analyzed. ERDA has established a goal of reaching final conclusions sometime in the spring.

Mr. Morrow stated that mercury analysis of all fish caught during the summer has been completed. Mercury concentrations in fish collected from Melton Hill Lake were about two orders of magnitude below those collected in Poplar Creek. Thirty selected fish samples from the summer sample collection will be analyzed for PCB's. This program is just getting underway and it will be several weeks before data is available for review. Another sampling of fish from Poplar Creek will be conducted during the spring spawning run with the samples being analyzed for mercury and PCB's.

Status of State of Tennessee Compliance Monitoring Program

Mr. Wing reviewed the background surrounding the State of Tennessee NPDES Compliance monitoring program which was conducted in August for the Environmental Protection Agency and commented on the ERDA and UCC-ND cooperation and participation in the program. UCC-ND and the State both analyzed the samples collected for the parameters listed on the NPDES permits. Comparison of the analytical data was relatively good and the data did not uncover any problems not already known and previously discussed with EPA and the State. Mr. Wing stated that ERDA was attempting to set up a meeting with State and EPA representatives in late November to discuss the data and resolve any potential difficulties with the compliance monitoring report.

Administrative Reporting Limits

Mr. Abee stated that proposed administrative reporting limits have been given to ERDA for review. ERDA has not been able to complete review of the proposed limits and no agreement as to the appropriateness of the proposed limits has been reached between ERDA and UCC-ND. During discussions with ERDA it was agreed that reporting of releases to ERDA which exceed administrative reporting limits would be handled in an informal manner, that is, each installation would notify the Safety and Environmental Protection office who would in turn discuss the matter informally with ERDA. Each installation can document, internally, releases in excess of reporting limits as desired. If proposed limits need revision, based on new information, proposals for revision should be made now.

Rad Effluent and Environmental Monitoring Report Plans

Mr. Abee asked each installation to review the Environmental Monitoring report for last year and consider any changes required for the current year's report as a result of program changes. Data being generated for inclusion in the current reports should be reviewed to ascertain that all phases of the programs are on schedule. Delays in data generation must be minimized if reporting deadlines specified in ERDA Manual Chapter 0513 are to be met. Notification of any changes required in maps or figures should be made as soon as possible in order that corrections can be made expeditiously.

The format for the reports will be essentially the same as that used for last year. Mr. Abee noted that no comments have been received to date from reviewers of last year's reports.

UF₆ Air Emissions From ORGDP

Mr. Mitchell discussed the abnormal releases of UF₆ from the ORGDP purge cascade which occurred during the months of August, September, and October. Quantities released were 3 to 4 times that which normally occur. Investigation revealed the high releases resulted from equipment malfunction; 3 of 5 NAF traps failed to function. Mr. Mitchell presented a schematic of the purge cascade operation and pointed out modifications to the system which were made to eliminate similar occurrences in the future. It should be noted that the environmental radiation monitoring network detected the abnormal releases and that analysis of samples positively identified the source of the releases.

Ultimate Disposal of Tc-99

Increasing amounts of Tc-99 have been noted in decontamination effluents from the Gaseous Diffusion Plants, particularly Portsmouth, and may be expected to increase as CUP progresses. Mr. Conrad noted that Paducah is investigating removal of Tc-99 from effluents by precipitation and storing sludge containing Tc-99 in drums. Paducah has proposed a FY-77 project for installation of removal equipment. ORGDP is sending decontamination raffinate to the Y-12 biodegradation facility currently. Any Tc-99 in the ORGDP raffinate will probably end up in the sludge from the Y-12 facility which may go to either the burial ground or the S-3 Ponds and eventually be leached into Bear Creek. Consideration should be given to installation of removal equipment at ORGDP. Ultimate disposal of stored Tc-99 sludge is unresolved at present and will probably be determined by ERDA Waste Isolation Program developments.

PCB Phase-Out Planning

Mr. Stief stated that the Toxic Substances Control Act recently passed by Congress incorporates a planned phase-out of PCB production and use. The exact wording of the Act cannot be ascertained until the Act is printed and distributed. Mr. Wing stated that copies of the Act would be available within the next week. A preliminary understanding is that the Act specifies all manufacture and importation of PCB's must be terminated by January 1, 1979. The Act also contains some constraints against transportation of PCB's. However, the Act does apparently permit the use of PCB's in closed systems where no discharge of PCB's can be assured. ERDA Headquarters is currently interpreting PCB usage in transformers as closed-system usage.

Mr. Stief reviewed information gathered by Mr. Jack Thompson, who is doing a study of the PCB problem for engineering, during a recent visit with Carbide Chemicals and Plastics regarding the use of silicone fluid as a replacement for PCB's. Silicone is reported to have a greater coefficient of expansion than PCB's, thus requiring transformer modification before replacement.

In addition silicones have not been approved at the present time for fire or flammability acceptance by the NFPA.

The present planning at ORGDP is to continue to use the present PCB filled transformers as is, without uprating and to add the additional needed capacity through the purchase and use of dry transformers. According to Mr. Stief, any transformers currently in the uprating process will go to Paducah. The solution to the problem of long-range replacement of the PCB filled transformers and what to do with the PCB's in these transformers is yet to be determined.

PEM Scrap Disposition

Mr. Baker stated that Paducah has accumulated a few thousand tons of uranium contaminated metal scrap and that more scrap will be generated as PEM progresses. The other gaseous diffusion plants are in a similar situation. A need exists for a program of smelting for reduction of scrap volume and storage or recycle to industry. Mr. Wing noted that the problem with smelting and recycle to industry is that no de minimus quantity of enriched uranium has been established or approved for recycle of contaminated material to industry. ERDA is working on the problem with NRC. Mr. Wing stated he did not know the status of the smelting proposal at the present time.

Pollution Control Projects

Pollution Control Projects at each of the four installations were briefly discussed. Summaries of the pollution control project status are included as attachments I, II, III, and IV.

Items of Note

Mr. Hibbitts discussed a preliminary data sheet proposal submitted by ORNL last year for a 3 million dollar line item to upgrade the radiation monitoring program. The data sheet was apparently not submitted through the normal budgetary channels but went to ERDA Headquarters. A recent letter to ORO from Dr. Liverman of Headquarters indicated possible support for such a project in the next fiscal year. Suggestions for items which might be beneficial to the other Oak Ridge installations for inclusion in such a line item are solicited. Mr. Abee will discuss low level analytical laboratory needs with Mr. J. C. White.

Mr. Conrad noted that amendments to the Solid Waste Disposal Act recently passed by Congress could have some possible effect on UCC-ND operations.

Meeting Schedule

The next meeting of the Committee will be held in March 1977 at Oak Ridge. The exact date will be announced later.

RGJ:HHA:cm

Attachments

for 14.14. Abee
R. G. Jordan

STATUS OF ORGDP POLLUTION ABATEMENT PROJECTS

1. Large Sewage Plant (K-1203)

The new K-1203 sewage plant was officially accepted by UCC-ND on November 4, 1976. With the exception of a few minor problems, this facility has operated satisfactorily, with all effluent parameters being within the NPDES limits.

New refrigerated composite samplers have been installed on the influent and effluent of the facility. However, additional parts, which are on order, will be needed to facilitate flow proportional sampling.

Excess water which enters the system from routine once-through cooling systems and from rainfall infiltration continues to be a problem. Engineering studies are underway to determine the most practical method for removing cooling water from the sanitary sewerage system. The replacement of broken sewerage pipes is currently in progress.

2. Small Sewage Plant (K-710)

The K-710 sewage plant continues to operate satisfactorily, except for the chlorination system. Due to the extremely small flows (less than 10 gpm) coupled with wide variations in the organic content, the maintenance of a chlorine residual between the NPDES limits of 0.5 and 2.0 mg/l is proving to be very difficult. The HTH basket system previously installed has not provided a solution to this problem. Just recently, it was decided to try a relatively large flow of sanitary water (greater than 10 gpm with a chlorine residual of about 1 mg/l) as the chlorination mechanism.

3. Neutralization Facility

The tie-in to the K-1413 facility is complete and all neutralization equipment is functioning properly. The only remaining unneutralized stream not now handled by this facility is the caustic discharge from the nitrogen plant scrubbers. This effluent, which amounts to about 50 to 75 gallons per day, will be piped to the neutralization pit as a result of a 1976A GPP project.

4. Containment of Oil and Hazardous Materials

Rust is currently proceeding on that portion of the project that provides for modification of the HF tank farm. This work is presently about 26% complete as compared to a scheduled 83%. The new completion date is now December 1, 1976.

The low bid on the lump sum portion of this project was submitted by Hobson Construction Company; the cost is \$192,400. A directive modification providing for reallocation of funds was required in order for this effort to begin. The construction is scheduled to begin in January, 1977 and be completed by May, 1977.

5. Drum Cleaning Facility

This project, which was moved back to and funded in FY-1976A, is currently in the design phase.

6. Purge Cascade Scrubber

Since the new K-402-9 purge cascade is not yet operable, no recent attempts have been made to operate the scrubber. The projected date for operation of this facility is after January 1, 1977.

7. Steam Plant Conversion and Particulate Removal

The contract for constructing the foundation for the precipitators and installing the associated electrical equipment has been awarded to Cousins Construction Company. This portion of the project is scheduled to be completed by March, 1977, when the precipitators are scheduled to be delivered. The projected data for installation of the precipitators is October, 1977.

8. Recycle - Resoftening of RCW Blowdown

The system is now operating but has not yet reached a degree of stability that will allow for the complete elimination of RCW blowdown. To date, the primary difficulty has been the maintenance of an acceptable sulfate concentration. In order to alleviate this problem, steps are being taken to (1) find a substitute for the sulfate-containing coagulant that has previously been used in the make-up water treatment process, and (2) replace the H_2SO_4 used for pH control with HCl. Preliminary material balances on the entire RCW system indicate that these changes may result in successful elimination of discharges to the Clinch River. As a precautionary measure, however, monies have been budgeted for FY-1978 to provide additional blowdown treatment, should it be required.

9. Segregation of Fire Water System From the RCW System

This project is currently in the construction phase, with a projected completion date of January 1, 1977.

STATUS OF ORNL POLLUTION CONTROL PROJECTS

Main Sewage Plant

The installation of the two aerators in the ponds is complete. The aerators will not be used except for test purposes until the BOD limit is again exceeded. The effluent from the plant fell below the 20 ppm limit in seven of the last eight weeks. There appears to be little doubt among the experts, however, that the BOD problem will reappear with changes in weather.

7900 Area Sewage Plant

Changes in operating procedures and analyses have eliminated the BOD problem for the last 10 consecutive weeks, but we now have a suspended solids and settleable solid problem. We are working on this problem with K-25's Foster Phillips. It is his opinion that we may have accumulated an excessive amount of solids in the aeration tank and that we may have to analyze for suspended solids in the aeration tank on a weekly basis for control purposes.

Cooling Tower Chromates

All towers except one small one used for the ORR pool are on polyphosphonates. Corrosion tests are being run in preparation for discontinuing use of chromates in the last tower.

The waste evaporator has been operated on polyphosphonates for the last two weeks. The effects of the chemicals on the cooling system, if any, will not be known for several more weeks.

Creek pH Monitors

The three monitors, two in the main stream of White Oak Creek and one in Melton Branch are now operating. Chemical leaks that will effect the pH at the official EPA designated sampling stations will be detected several hours before they reach the sampling stations. The early detection of the leaks will reduce their seriousness should they occur in the future.

Conversion of Old Process Waste Treatment Plant To Neutralizing Station For
Steam Plant and Water Demineralizer Wastes

The project has been split into two parts. One, the modification of the old Process Waste Treatment Plant and installation of a connecting pipeline from the Steam Plant has been designed and is awaiting Rust Engineering's estimate. The second part, which was to be the installation of a pipeline between the Water Demineralizer Building and the modified Process Waste Treatment Plant, will probably be abandoned in favor of a neutralizer installed at the Demineralizer Building. A study and estimate of the neutralizer is now in progress.

New Process Waste Treatment Plant

The plant has been operating since last March at a strontium removal efficiency greater than 99%. The operation of the plant has reduced the radioactive discharge at White Oak Dam for the last three months to below MPC_w level for uncontrolled areas.

ATTACHMENT III

STATUS OF Y-12 POLLUTION CONTROL PROJECTS

A project is underway to reduce rad waste from the 3rd mill Building 9215. This project, if successful, will reduce rad waste to New Hope Pond approximately 900 - 1000 Kg's per year.

ATTACHMENT IV

Status of Environmental Protection Projects Paducah Gaseous Diffusion Plant

1. C-616 Liquid Effluent Treatment Facility

The subcontract work is almost complete but modifications will be required before startup. Operation of this facility is probably three months off.

2. C-611 Treatment Lagoon

The new Number 3 Lagoon is essentially complete. Minor work is required on the outlet weir and connecting piping. It now appears that recycling the effluent will not be necessary since EPA has agreed to raise the effluent pH limit to 10.0.

3. Monitoring Stations - Big Bayou and Little Bayou

Parshall flumes have been installed and the instrument buildings have been erected at each location. Instrumentation should be installed very soon so that the stations will be operational during December.

4. C-410 Hydrogen Vent Scrubber

The system has been tested using water and is leakproof. One of the pumps has failed and further testing using acid has been delayed until replacement parts arrive. We need operating experience with the scrubber before the Feed Plant shuts down in late FY 1977.

5. C-404 Solid Radioactive Waste Pit

The pit area has been completely filled in and the surface has been sloped to facilitate runoff of rain water. Drums of radioactive waste are now stacked on the surface and will be mounded with dirt. These changes will greatly reduce leaching from the C-404 area.

6. F₂ Cell Neutralization

A cell turning fixture to allow precipitation of fluoride from fluorine cell electrolyte is under construction. This facility should be operable early in 1977.

7. UF₄ Storage

Approximately 24,000 drums of uranium tetrafluoride generated at C-340 will be drummed, stored on an outside concrete storage pad and covered with plastic. All available storage space inside the process buildings contain either UF₄ or PEM equipment. This outside storage is temporary and long-term storage will eventually be required. Drum deterioration followed by leaching and airborne losses of UF₄ could become problems within a few years.

8. Status of Other Miscellaneous Projects

Electrostatic Precipitators - C-600

C-600 Liquid Effluent Control

C-616 pH Control

Firewater System Conversion

Filter Wash Carts

Incinerator Scrubber

Contract for ESP's awarded.

Construction scheduled for 12/76.

Construction scheduled for 2/77.

Construction scheduled for 11/76.

Design complete.

All material received - installation
awaiting maintenance manpower.

MCC:lr

AGENDA

UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING

March 23, 1977

Oak Ridge

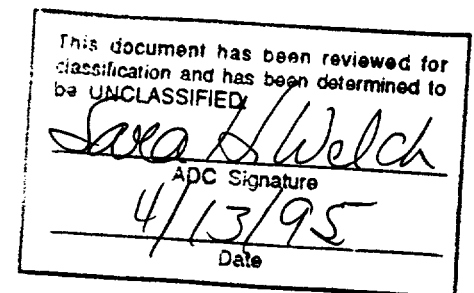
1. PCB Study Committee Report - S. S. Steif
2. Chromate Removal Systems - Status -- M. E. Mitchell, M. C. Conrad
3. Environmental Assessment of Radioactive Solid Waste Storage Areas - Each Installation
4. Paducah Environmental Action Plans - R. C. Baker/M. C. Conrad
5. Pollution Control Problems With Contractors - M. E. Mitchell
6. Pending Impact Statements - Each Installation
7. Zero Discharge Concepts For 1980 GDP Line Item - M. E. Mitchell, M. C. Conrad
8. Pollution Control Associated With Mercury Decontamination - M. Sanders
9. Pollution Control Projects - Status -- Each Installation
10. Items of Note

RGJ:cm

3/16/77

Distribution

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R. C. Baker	H. Postma
J. T. Blackmon, Jr.	M. Sanders
J. M. Case	I. G. Speas
P. C. Fourney	S. S. Steif
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Technical Information Office
Oak Ridge K-25 Site

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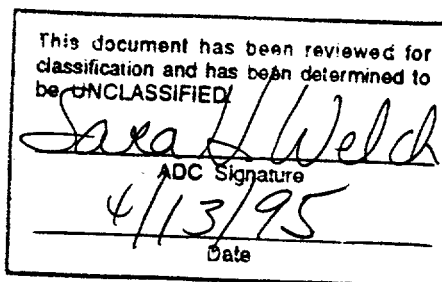
UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING

March 23, 1977

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UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING

March 23, 1977

The UCC-ND Environmental Monitoring and Protection Committee convened on March 23, 1977, 9:00 a.m. in Oak Ridge. Those in attendance were H. H. Abee, J. T. Blackmon, M. C. Conrad, R. G. Jordan, E. M. King, G. B. Marrow, M. E. Mitchell, J. M. Napier, J. H. Pashley, M. Sanders, I. G. Speas, and S. S. Stief. J. F. Wing from the ERDA-ORO Environmental Protection Branch was an invited guest.

PCB Study Committee Report

Mr. Stief reported that the Carbide Engineering Division has established a polychlorinated biphenyls (PCB) study committee made up of representatives from the Nuclear Division installations and the Portsmouth Gaseous Diffusion Plant. The Committee will attempt to develop a feasible economical program for the replacement and disposal of PCB now contained in electrical transformers at ERDA-ORO facilities pending a possible ban on PCB usage in the future. Mr. Paul James of the Paducah Gaseous Diffusion Plant is chairman of the Committee. An action plan has been developed and responsibility for each program step or element of the action plan has been assigned to various Committee members. The Committee plans to survey industry and the literature to determine proposed courses of action with regard to PCB's, survey the market and evaluate proposed substitutes for PCB's, compile a tabulation of equipment containing PCB and the quantity of PCB by site location, and investigate methods of replacement and disposal to include schedules and projected costs. The Committee hopes to complete the study by September 1978 and issue a draft of the Committee report for review by January 1, 1979.

Mr. Conrad noted that Paducah has recently received two tank cars of PCB which will be stored for use in the transformer uprating program.

Mr. Blackmon stated that dry transformers rather than PCB filled transformers are specified for the Portsmouth Add-On Plant.

Chromate Removal Systems - Status

Mr. Mitchell stated that the equipment for segregating the fire water system from the chromated RCW system has been installed. It will probably be about two weeks before segregation of the systems can be effected.

The RCW recycle facility was completed in July, but operational problems with some of the equipment and buildup of excessive concentrations of calcium sulfate in the system necessitated some blowdown from the system. Equipment modifications are being made and current plans call for using hydrochloric acid as a substitute for sulfuric acid in the acid addition part of the process to reduce the concentrations of calcium sulfate in the system. Funds have been

requested for storage and acid addition equipment for this purpose. A material balance study indicated this approach may resolve the problem of high dissolved solids concentrations and thus result in the elimination of the vast majority, if not all of the blowdown discharges from the system. Monies have been budgeted for FY-1978 and engineering studies initiated to provide additional blowdown treatment if the proposed modifications are not successful. In any case, it is doubtful that compliance with NPDES permit limits for chromium in the effluent from the K-901A holding pond, the current receptor of RCW blowdown, will be realized by the July 1, 1977 deadline for installation of best practical treatment.

Mr. Conrad stated that the fire water system at Paducah is now segregated from the RCW system. The residual chromate level in the fire water system is currently about 1 ppm. This level will decrease during the spring flushing and testing operations. Some concern has been expressed regarding the possibility of the water freezing in the water tank. Possible solutions to the potential freezing problem are under investigation. The C-616 Liquid Effluent Treatment Facility for removal of chromate from RCW blowdown was completed in late February. Some problems with the equipment were encountered which required modification by Nuclear Division maintenance. Ferrous sulphate, which is used in the treatment process, is on order and test operations should begin about the middle of April. The treatment system should be operational before July 1977. The degree of compliance with NPDES permit limits for chromium in the effluents will not be known until after the facility becomes operational.

Mr. Stief suggested that operators of water treatment systems may need considerably more training to be effective than is currently being given within the Nuclear Division. As an example, he cited Boeing, where operators are being given a six month training course. The relatively frequent change in treatment system operators as a result of the job bidding system prohibits training of this duration; however, more formal training than currently practiced may be appropriate. Mr. Napier volunteered to obtain information on short courses in water treatment techniques which may be available from the local universities.

Environmental Assessment of Radioactive Solid Waste Storage Areas

A recent letter from the ERDA contract administrators to the Nuclear Division Plant Managers requested an in-depth study of all solid radioactive storage areas at each installation. The request included a detailed format to be used in preparing the assessment reports and requested that the reports be submitted to ORO no later than May 2, 1977. Principal staff members responsible for coordinating the studies and preparing the assessments at each installation were reported as follows: Paducah, R. C. Baker; ORGDP, R. W. Levin; Y-12 Plant, M. Sanders; ORNL, R. A. Robinson.

Paducah Environmental Action Plans

Mr. Conrad discussed 1977 environmental initiatives at Paducah for which action plans were developed and distributed copies of the action plans to Committee members. The action plans covered specific activities or problem areas in the following major categories: (1) Correct known deficiencies; (2) Performance evaluation of new systems; (3) Maintenance of environmental quality during major plant changes; (4) Comprehensive survey of "minor" pollution sources; (5) Administrative activities; and (6) External relationships.

Pollution Control Problems With Contractors

Mr. Mitchell stated that pollution control problems with contractor organizations were predominantly in two categories. For the past several years, disposal of contractor generated solid wastes (demolition wastes, construction wastes, etc.) has been a problem. Difficulties were encountered in getting the contractors to segregate wastes and dispose of the various type wastes in the proper designated areas. Although the problem has not been completely resolved, improvements have been effected through inclusion of more detailed specifications in construction contracts and better administration of disposal activities. A recent problem has occurred with the concrete suppliers. Drivers of concrete trucks were discovered washing out the concrete trucks into storm drains which resulted in high pH in the storm drain effluents. As a solution to this problem, pits containing sand and gravel were constructed in areas convenient to construction work. The concrete suppliers were requested to instruct drivers to discharge truck washings into one of these pits to prevent discharge to surface streams. Hopefully this will resolve the problem.

Pending Impact Statements

Mr. Wing briefly reviewed the historical background leading to an ERDA Headquarters request for the development of Environmental Impact Statements for several of the Nuclear Division operated facilities. A letter to R. J. Hart from J. L. Liverman, Assistant Administrator for Environment and Safety, has requested that Environmental Impact Statements be prepared on ORGDP and ORNL (X-10 site) operations and an Environmental Assessment be prepared on the Y-12 Plant operations. Mr. Wing noted that in view of the request for a Statement on ORGDP operations, a Statement would also be required for Paducah operations. Contract arrangements with Battelle Columbus Laboratories for conducting an environmental and ecological survey of the Paducah site for inclusion in the Statement preparation are being negotiated. A proposal by Battelle for doing this work was reviewed in February and a number of changes were suggested prior to negotiating the contract. Mr. Wing stated that FY-77 funds have been identified to initiate preparation of the Statements for ORGDP and Paducah. Work on both Statements will continue into FY-78, but no funding for that portion of the work has as yet been identified. At the present time, no funds are available for work on the ORNL Statement; however, a 189 is being prepared for inclusion with a request for funds for the ORNL Statement. It is expected that the cost of preparing the Y-12 Assessment will be relatively small and probably will be funded from operating expense.

Zero Discharge Concepts for 1980 GDP Line Item

Mr. Wing noted that ERDA-ORO had provided some guidance on various large-scale pollution abatement efforts that are now in the long-range planning projections for FY 1980-1983 in a letter dated March 18 from the Contract Administrators to the Plant Managers. Basically, the guidance states that projects cannot be justified on the zero discharge concept since zero discharge is cited in the Federal Water Pollution Control Act (FWPCA) as a goal and is not considered by ERDA to be a legal requirement which will be imposed to retrofit existing processes. Mr. Wing stated that large umbrella long-range line item projects would not be supported but individual source treatment projects, which may be a part of the large line item projects which are reasonable and economically justifiable on a best available treatment economically achievable (BATEA) criteria, would probably be supported on a case-by-case basis. Nuclear Division facilities should include in long-range planning budgets requests for funds to provide BATEA for effluents as required by the FWPCA even if no funds are available.

The Committee consensus was that major efforts should be placed currently on meeting the July 1977 NPDES Permit limits. Mr. Wing stated that changes within the organization of EPA has resulted in the EPA's office of Federal Facilities in Regions IV and V becoming more titular in nature. Currently, ERDA is getting more communications from EPA enforcement personnel. This may be the result of new EPA personnel who are not totally familiar with ERDA facility problems and projects under way to resolve these problems.

Pollution Control Associated With Mercury Decontamination

Mr. Napier discussed plans for the removal of mercury from Building 9201-4 and the development test plan for cleaning equipment following removal of the mercury. Decontamination of the columns include vibration to cause free mercury remaining in the columns to collect in the bottom, draining the free mercury to collection tanks, cleaning the columns with a wash solution, and treatment of the wash solution and waste water with sodium borohydride plus filtration to reduce mercury levels in the water to 0.002 ppm or less before discharge.

Pollution Control Projects

The status of pollution control projects at each installation and Y-12 development projects for FY-1977 were briefly discussed. Summaries of the projects status are included as attachments I, II, III, and IV.

Items of Note

Mr. Sanders stated that Engineering has been asked to develop a cost estimate for providing a by-pass capability around New Hope Pond which could be used in case of an accidental spill to route waste water around the pond after collection of the spill in the pond. Such by-pass capability would provide more containment time in the pond for treatment of the contained material.

Mr. Conrad described a Paducah study on reclaiming fluorine cell electrolyte which when implemented should minimize or eliminate problems associated with this material which have been encountered in the past. He also discussed the compliance stack sampling work on the nickel smelter at Paducah and stated that the data collected indicated compliance with emission limits.

Mr. Sanders distributed Y-12 steam plant stack sampling data recently gathered by a consulting firm as a part of the electrostatic precipitator efficiency analysis. The data indicated that the steam plant was out of compliance for SO₂ emissions and out of compliance part of the time for particulates. Subsequent review of the data indicated the SO₂ emissions appeared excessively high and may be in error.

Meeting Schedule

The next meeting of the Committee will be held in Paducah on July 13, 1977.


R. G. Jordan

RGJ:HHA:cm

Attachments

Status of PGDP Pollution Control Projects1. C-616 Liquid Effluent Treatment Facility

Construction was completed February 28, 1977 and system testing is underway. Some minor modifications and painting will be required on the clarifier. The system should be operational before July, 1977.

2. C-611 Lagoon No. 3

Construction was completed in November, 1976. Minor work is required on the effluent weir for flow measurement. Utilities indicates that the new lagoon will be put in service about April, 1977.

3. C-616 pH Control System

Drawings were certified for construction in December, 1976. Construction began in February, 1977.

4. RCW Firewater Conversion

This project is essentially complete. Chromium concentrations in the tank are below 1 ppm. The need for further system flushing will be evaluated before July, 1977.

5. C-410 Fluorination Cell Neutralization

This project will be complete about the middle of April, 1977, just prior to the scheduled Feed Plant shutdown.

6. C-600 Effluent Control

Construction was initiated in December, 1976 and is scheduled for completion by July, 1977.

7. C-405 Incinerator Scrubber

Construction is complete and sampling ports are being installed. Stack effluent testing will be conducted prior to routine operation.

8. C-410 Hydrogen Vent Scrubber

The HF scrubber system is operational. Data obtained during operation prior to Feed Plant shutdown will be very helpful in designing new scrubbing systems.

9. Monitoring Stations - Big Bayou and Little Bayou

These stations have been operational since the middle of December, 1976.

MCC:lr

3-18-77

STATUS OF ORGDP POLLUTION ABATEMENT PROJECTS - MARCH 19771. Containment of Oil and Hazardous Materials

The Containment of Oil and Hazardous Materials Project was divided into two portions, one being CPFF (Rust Engineering), the other lump sum (Hobson Construction Company). The CPFF portion of the project consists of HF tank farm modifications including relocation of a tank, application of HF resistant surface coatings to the concrete dike, and process piping and instrumentation modifications. This portion of the project is approximately 65% complete.

The remainder of the project (lump sum portion) consists of diking transformers containing PCB's, installation of portable drain plugs in K-33, installation of a mechanized weir at the K-1407-B holding pond, construction of an equilization pit at K-1410, and floor drain modifications and sealing around walls at K-1413. This portion of the project was authorized in December 1976 and is scheduled for completion by June 2, 1977. Present projections show the project is about 52% complete; however, major items such as K-1410 and K-1407-B which require extensive excavation work were only recently initiated.

2. Resoftening - Recycle of RCW Blowdown

This project will facilitate the collection and the resoftening of the chromium-containing blowdown from the RCW system so that it can be recycled without an unacceptable build-up of dissolved solids. The newly-installed system is operating but has not yet reached a degree of stability that will allow for the complete elimination of the blowdown. The primary problems encountered thus far are (1) mechanical malfunctions, including freezing, of key components of the softening apparatus, and (2) a build-up of unacceptable levels of dissolved sulfate in the recirculating water. Necessary modifications are being made to the softening equipment to render it more acceptable. In order to solve the sulfate problem, steps are being taken to (1) find a suitable substitute for the sulfate-containing coagulant aids that have been used for the past several years, and (2) replace the sulfuric acid used for pH control with hydrochloric acid. The latter will necessitate the installation of a new fiberglass storage tank which cannot be installed before July, 1977.

Preliminary material balances on the entire RCW system indicate that these modifications should result in the successful elimination of the vast majority, if not all, of the RCW blowdown during CUP operating conditions. However, as a precautionary measure, engineering studies are being initiated to determine the best method of additional treatment, should it be needed. The cost for such treatment has been budgeted for FY-1978.

3. Segregation of Fire Water System From the RCW System

This project is the second of a two-phase effort to eliminate chromium discharges from the ORGDP. It consists of providing a separate nonchromate treatment for the fire water system while retaining the capability for utilizing the RCW should a fire require it. The system is now installed and undergoing final testing prior to start-up.

4. Steam Plant Particulate Removal

The contract for constructing the foundations for the electrostatic precipitators and installing the associated electrical equipment has been awarded to Cousins Construction Company. This portion of the project, which is scheduled for completion by April, 1977, is now complete. The precipitator delivery is scheduled for March, 1977, and the projected date for completion of installation of the first precipitator is November, 1977.

5. Purge Cascade Scrubber

The scrubber for the new ORGDP purge cascade (K-402-9) has been installed and is now in the early stages of operation. Due to the uniqueness of this system, special precautions, including special sampling of each liquid and gaseous stream, are being initiated to prevent accidents and/or operational problems. The first sets of data indicate (1) the system is very efficient in removing uranium and fluorides, (2) the uranium and technetium appear to be precipitating in the primary loop where they are removed by filters, and (3) the build-up of dissolved solids may necessitate a small liquid blowdown.

6. Drum Cleaning Facility

A facility for deheading and cleaning drums in an environmentally-acceptable manner will be installed in FY-77. The project was funded as part of the FY-76A Transition Budget and is now in the design stage.

7. Neutralization of Caustic Wastes - K-1301

A 1976A GPP project was initiated to provide neutralization capability for caustic solutions discharged from the nitrogen plant scrubbers. The scope of the project calls for the installation of a caustic-resistant line from the nitrogen plant (K-1301) to the neutralization facility (K-1407-A). This installation has been designed and is currently awaiting construction by Rust Engineering Company.

ATTACHMENT III

Oak Ridge National Laboratory STATUS OF POLLUTION CONTROL PROJECTS

Main Sewage Plant

At this plant all effluent parameters are generally within NPDES permit limits with the exception of Ammonia (N) which is almost continuously out of compliance. Plans are to request a revision in the NPDES permit limit for Ammonia (N) rather than install additional treatment capability since the slightly elevated effluent levels do not create a problem in the receiving stream because of the dilution by the stream.

7900 Area Sewage Treatment Plant

All efforts to bring this package plant into compliance have been unsuccessful. It appears that the problems are caused by the under-loading of the plant (7500 gal/day capacity operating at less than 1000 gal/day on weekdays and less than 500 gal/day on weekends) and the wide variations in the population served (200 on weekdays and less than 25 on weekends). For the present this discharge has been eliminated by trucking the effluent (less than one-half gallon per minute) from this plant to the main sewage plant and adding it to the influent of the main plant.

Cooling Tower Chromates

Chromates from the reactor cooling water towers, except for the discharge from one small cooling tower at the ORR, have been eliminated by substitution of a polyphosphonate corrosion inhibitor; tests are being conducted with polyphosphonate on the ORR tower. As previously noted, the radioactive intermediate level waste (ILW) evaporation tower must continue to use a chromimum based inhibitor but, because of its very low discharge rate, is not expected to constitute a significant compliance problem.

pH Control of Steam Plant and Demineralizer Building Effluents

Rust Engineering has begun modification of the old Process Waste Treatment Plant for use as a neutralizer and evacuation for installation of the transfer line from the Steam Plant. Engineering design of the neutralizer in the Demineralizer Building is complete and it has been transmitted to Rust Engineering. It is expected that both of these will be complete and in operation by July 1, 1977.

New Process Waste Treatment Plant

This plant continues to operate at better than design removal efficiencies.

DEVELOPMENTAL PROJECTS - FY 1977

I. Acid Waste Plant

1. The nitric acid recycle system is operating and recycle acid is being used in the plant.
 2. The aluminum nitrate recycle system is operating and the purity of the salt is satisfactory.
 3. Biological denitrification process has operated since October, 1976.
- Minor equipment problems were corrected during the start-up and check-out stages.

II. RAD Reduction

Waste water from the rolling mill is being temporarily batch treated with calcium hydroxide to precipitate uranium. The amount of depleted uranium leaving the area was reduced from a nominal 57 kg in November, 1976 to 2.6 kg in December, 1976 and 2.7 kg in January, 1977. An acid spill from a pickling bath occurred in February, 1977 and the losses increased to 117 kg. Equipment is to be installed in the rolling mill and losses from this area can be controlled.

III. Sodium Hypochlorite

A survey of commercial plants have been completed and long-term disposal of the waste solution appears to be a problem. An action plan which included defining an economical and environmentally acceptable disposal method is being prepared.

IV. Be Contaminated Water

Tests have shown that filtration of this waste water will reduce the impurities to acceptable levels. Pilot plant equipment is being assembled to develop an operational procedure.

V. Mercury

A pilot plant is being assembled to treat mercury contaminated waste waters generated in Building 9201-4. Development procedures to treat waste water and to clean equipment have been prepared. Until the construction of the pilot plant is completed, all waters are being collected and retained in large storage tanks. Processing of waste waters is expected to begin within 60 days.

VI. Nitrification-denitrification

Technical personnel from Paducah have been in contact with me to discuss the nitrification-denitrification process. It was agreed that all information we have will be given to Paducah if they start a process development program designed to eliminate ammonia and nitrate releases from their plant.

bc: J. K. Alexander
M. E. Mitchell
J. M. Napier
T. W. Oakes

AGENDA

JOINT MEETING UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION
COMMITTEE AND GAT ENVIRONMENTAL CONTROL REPRESENTATIVES

July 13, 1977 - 8:30 a.m.

Paducah

1. PCB Study Committee Report -- S. S. Stief
2. EPA Meeting on Solid Waste Permits -- R. C. Baker
3. Technetium Removal and Ultimate Disposal at GDP's -- Gaseous Diffusion Plant Representatives
4. NPDES Compliance Status and Comments -- J. K. Alexander and Each Installation Representative
5. Planning to Meet 1983 BATEA -- Each Installation Representative
6. Application of Guide for Environmental Radiation Monitoring -- Each Installation Representative
7. Status of Mercury Study -- M. Sanders/J. M. Napier
8. Y-12 R&D on Pollution Control Projects -- J. M. Napier
9. Status of Fluoride Sampling Investigation -- M. E. Mitchell
10. Current Pollution Control Project Status -- Each Installation Representative
11. Items of Note -- Each Installation Representative

Note: Committee will reconvene after lunch at 1:00 p.m. for completion of agenda and tour of pollution control and monitoring facilities.

A joint meeting of the UCC-ND Safety Committee and GAT Safety Representatives will be held in Paducah beginning at 8:30 a.m. on July 14. Members of the Environmental Monitoring Committee are invited to attend.

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6/29/77

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UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING

July 13, 1977

Distribution

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UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING

July 13, 1977

The joint meeting of the UCC-ND Environmental Monitoring and Protection Committee and GAT Environmental Control representatives convened on July 13, 1977, at 8:30 a.m. in Paducah. Those in attendance were H. H. Abee, D. L. Ashburn, B. I. V. Bailey, R. C. Baker, M. C. Conrad, D. C. Gary, L. V. Gibson, C. E. Johnson, E. M. King, M. E. Mitchell, J. M. Napier, J. H. Pashley, B. J. Rumble, M. Sanders, I. G. Speas, S. S. Stief, and R. A. Winkel. J. K. Alexander and R. C. Martin from the ERDA-ORO Environmental Protection Branch were invited guests.

PCB Study Committee Report

Mr. Stief reported that the PCB Study Committee has developed an action plan aimed at issuing a report of the Committee's work by the end of 1979. The study includes: (1) a survey of industry to determine their proposed course of action with regard to PCB's; (2) a survey of the market and evaluation of proposed substitutes for PCB's; (3) an investigation of methods of replacement and disposal to include schedules and costs; and (4) a compilation of equipment (transformers and capacitors) containing one pound or more of PCB by facility and site location stating quantity.

The survey of industry indicates most utilities or companies propose to replace equipment on an "as-failed" basis with non PCB equipment. Little retrofitting of transformers is planned even when suitable substitutes become available since total removal of PCB from inside the transformer does not appear possible even with repeated flushings, thus, contaminating the replacement fluid with PCB.

EPA proposed regulations on disposal of PCB's require the incineration of liquid PCB's in an approved incinerator. The ORGDP Environmental Control Group is planning to visit the Monsanto incineration facility to obtain information relative to development of preliminary specifications for an incineration unit to be reviewed by the committee. The cost of construction and operation of a mobile incinerator which could be moved from site to site may be considered.

EPA Meeting on Solid Waste Permits

Mr. Baker reported on an EPA meeting on Section 3005 (Permits for treatment, storage, or disposal of hazardous wastes) of the "Resource Conservation and Recovery Act of 1976" which was held in Louisville, Kentucky. The purpose of the meeting was for EPA to get informed opinions on how best to translate Section 3005 of the Act into regulations. Most of the input provided by participants emphasized the development of regulations which are reasonable and applicable. Indications were that permits would be required for the waste generators and disposal operators. A manifest would be required for the transporter which would be returned to the generator following delivery of the wastes. Mr. Baker stated the participants requested EPA to issue a report on the meeting for participants to review and comment to assure accurate content and interpretation of participant input.

Technetium Removal and Ultimate Disposal at GDP's

Mr. Baker reported that technetium is being removed from decontamination solutions at Paducah by precipitation techniques with the resulting precipitate (sludge) being drummed in 55 gallon drums. Technetium is a long half-life radioelement which requires long term containment. While a retrievable storage concentration limit exists for transuranics, no such limit exists for technetium. Mr. Baker suggested a retrievable storage limit of 0.1 Ci/kg for technetium and indicated plans to bury drums containing technetium concentrations below this limit in the C-404 facility. Concentrations greater than 0.1 Ci/kg would be retained for ultimate disposal by whatever method is developed in the waste isolation program.

Ms. Rumble indicated that Portsmouth is using an ion exchange technique for removal of technetium and the resin containing technetium is being retained in drums. The laboratory is investigating also a sulfite process for the removal of technetium. Portsmouth currently has no plan for disposal of the stored drums containing technetium.

Mr. Mitchell stated that decontamination raffinate solutions at ORGDP are being sent to the Y-12 Plant for biodegradation. Estimates indicate these solutions could contain from 2 to 6 curies of technetium per year. Sludge from the biodegradation process which would contain the technetium may go either to the Y-12 burial ground or the S-3 Ponds where it could eventually be leached into Bear Creek. Sludge and solutions from the purge cascade scrubber which contain some technetium are placed in the K-1407C retention basin where containment is maintained by pH control.

Mr. Baker suggested it might be more acceptable, from a public relations and political viewpoint, to release some technetium to the environment in liquid waste streams (up to 1 Ci per month) rather than to have technetium leaching from burial grounds.

NPDES Compliance Status and Comments

Mr. Alexander, ERDA Environmental Protection Branch, stated all problems with regard to NPDES compliance within ORO have been discussed with EPA and the overall status seems to be satisfactory. Administration of NPDES for ORO facilities is different in Region IV and Region V. Region IV has a one point contact for dealing with NPDES problems while Region V has multi-contact points. Both Mr. Alexander and Mr. Martin expressed the opinion that even though UCC-ND-operated facilities and Portsmouth are considered major dischargers, enforcement action by EPA would not be on a high priority basis because of the major efforts taken to achieve compliance by the July 1, 1977 deadline. Mr. Martin felt that enforcement action would be directed first at those industries which have refused or failed to build treatment facilities. Mr. Alexander stated that all problems with regard to NPDES compliance and enforcement should be referred to and handled by ERDA.

Mr. Mitchell stated ORGDP has nine permitted discharge locations, two of which have been consistently out of compliance. The major problems have been pH and chromium releases. Completion of the K-1410 pH control facility

has been delayed due to problems in getting valving equipment. This project is scheduled for completion by August 1, 1977. As of July 1, 1977, all chromium discharges in RCW blowdown to the K-901A holding pond have ceased. An Andco electrolytic chromate removal unit was installed to treat the approximate 100 gallon per minute blowdown stream coming from the RCW treatment system. The unit appears to be working well and barring critical equipment failure, chromium releases should be in compliance. The Environmental Control Group has asked Engineering to develop contingency plans for use in case of equipment failure.

Mr. Winkel stated that all noncompliance reports from ORGDP go through his office and receive personal attention which expedites corrective action.

Mr. Martin suggested all plants should look toward the development of contingency plans to handle equipment failures since this is an area where serious noncompliance problems can occur in the future.

Mr. Sanders reported compliance at all discharge points at the Y-12 Plant as of July 1, 1977. Meeting the zinc discharge limit on New Hope Pond may be a borderline problem since the Oak Ridge Water Plant, from which Y-12 gets all their water, still uses an additive containing zinc as a corrosion inhibitor. The zinc concentration in the incoming water is almost at the concentration specified in the discharge permit. Mr. Alexander stated the water plant operators are planning to test a new additive which contains no zinc.

Mr. King stated ORNL is essentially in compliance with all discharge limits with the exception of ammonia (n) in the sewage plant effluent. ERDA is planning to request relief on this limit from EPA. Some delay has been experienced in completion of the pH neutralization facilities for steam plant and demineralizer building effluents due to difficulty in obtaining control equipment; however, current projections indicate completion by July 31, 1977.

Mr. Conrad reported the C-616 Chromate Treatment Facility at Paducah became operational in late June. Effluent analyses indicate that removal efficiency is well within design specifications and NPDES chromium release limits are being met. Potential noncompliance problems after the July 1, 1977 deadline appear to be pH and temperature violations in the Bayous and occasional chromium release violations.

Ms. Rumble reported the Portsmouth Gaseous Diffusion Plant has nine permitted release points, three of which usually have little or no flow. The chromate treatment facility is operational and working well, with discharge levels ranging from 0.01 to 0.06 ppm chromium. Continuing NPDES problems following the July 1, 1977 deadline are pH control in the water treatment plant effluent, pH control from coal pile runoff, nitrates from decontamination, and occasional noncompliance for fluorides. Systems to alleviate these problems are under construction.

Planning To Meet 1983 BATEA

Mr. Mitchell reported seven potential problem areas have been identified at ORGDP for consideration with respect to BATEA. These include further nitrate abatement, removal of dissolved solids, tertiary sewage treatment, pH control from the steam plant, removal of nickel from K-1410 effluent, and sludge handling and treatment.

Mr. Sanders reported Y-12 has made a "shopping list" of potential problems which includes 25 items. Long range plans and specific objectives are being developed for each item including development time and engineering cost estimates. Five of the items are to be submitted in the FY 1980 budget at a cost of from two to five million dollars.

Mr. King stated ORNL Chemical Technology and Operations Divisions were working with Engineering to identify potential problem areas for BATEA consideration. Most of the effort at ORNL has been directed toward containment and limitation of release of radioactive materials. Some current effort is directed at examination of waste releases from coal conversion processes in anticipation of increased research effort in this area.

Mr. Conrad reported a "shopping list" is being developed at Paducah. Among the items being considered are nitrates from C-400, treatment of heavy metal wastes, an additional clarifier for the C-616 facility, and better spill containment and emergency capability.

Ms. Rumble indicated a feasibility study was in progress at Portsmouth for removal of dissolved solids from RCW blowdown. A preliminary estimate for the cost of such treatment is approximately 12 million dollars. To achieve zero discharge in the RCW system is estimated to cost from 18.5 to 21.5 million dollars. Other items under consideration are the construction of three new holding ponds, nitrate removal from effluents, and tertiary treatment for the sewage plant.

Mr. Martin stated that consideration of nitrate removal was appropriate since additional limitations on nitrate releases would in all probability be forthcoming in 1983. Tertiary treatment of sewage effluents is questionable. ERDA will defer funding for tertiary treatment until required by EPA. The ERDA Headquarters position on zero discharge is that zero discharge is a goal rather than a requirement of the law and pollution control projects cannot be justified on a zero discharge concept. Going to zero discharge will not be considered unless some identifiable benefit can be realized in doing so.

Application of Guide For Environmental Radiation Monitoring

All installations reported their environmental radiation monitoring programs were in general agreement with the guide. No changes have been made to date as a result of the guide. Mr. Abee suggested some consideration needs to be given to revision of data interpretation and handling techniques based on the guide recommendations.

Status of Mercury Study

Mr. Napier reported a study of past operations involving mercury at the Y-12 Plant was made at the request of ERDA. The study included a complete inventory of mercury received and mercury on hand, a discussion of spill situations, recovery operations, and a projection of possible losses. The report is classified but can be made available to interested committee members upon request. Bottling of the mercury on hand at Y-12 is nearing completion. Empty mercury columns are being filled with water and vibrated to remove additional mercury retained in the columns following normal draining. A significant quantity of mercury is being recovered by this technique. Wash water from the columns is being retained for treatment with sodium borohydride. Phase III of the program will include stripping and decontamination of process equipment. Decontamination techniques are still under study.

Y-12 R & D on Pollution Control Projects

Mr. Napier reported on several pollution control projects in which the Y-12 Development Division has been actively involved. The Y-12 Acid Waste Recycle Plant which resulted from Y-12 development work is now operational. The nitric acid recycle and aluminum nitrate recycle parts of the process are operating on a routine basis after some corrections to faulty equipment. The biodenitri-fication phase of the process has been operated since October 1976, with only an occasional shut-down. The major operational problem with this part of the process has been control of the pH when nitrate wastes other than those generated at Y-12 have been processed.

An aerobic biological reactor is under development and testing to decompose machine coolants into carbon dioxide gas. Process control parameters are being determined.

Sodium hypochlorite wastes generated at the Y-12 plant will continue to be transported to the Knoxville sewage plant through 1980. If the volume of wastes increase as expected, an additional disposal problem will occur in 1981. Chemical treatment methods will be required for disposal of the excess wastes and several chemical treatment methods are being evaluated.

Status of Fluoride Sampling Investigation

Mr. Mitchell reported on the fluoride sampling investigation effort directed toward determining collection efficiency curves for the treated filter paper collection media. Two identical sampling trains were installed side by side at both Paducah and ORGDP and sampling was conducted over a three month period in various fluoride in air concentrations. Preliminary analysis of the data indicated a relatively uniform parabolic efficiency curve for the Paducah results with a collection efficiency of 60 to 70 percent for the 0.2 to 0.3 ppb air concentration range and 90 percent for concentrations > 1.5 ppb. The ORGDP data was scattered and curve fitting was more difficult. Collection efficiency appeared to be only 20 to 30 percent for the 0.2 to 0.3 ppb concentration range and 70 to 80 percent for concentrations > 1.5 ppb. Statisticians are analyzing the data but currently there is no explanation for the difference in results. A continuation of the study is planned.

Current Pollution Control Project Status

A brief summary of the status of pollution control projects was submitted by each installation and is attached to the minutes.

Items of Note

Mr. King discussed an oil spill incident which occurred at ORNL when a 50,000 gallon plastic tank ruptured. Most of the oil was contained in the diked area around the tank. That which seeped through the dike into the creek was removed from the creek by floating booms and oil sorbant material. No oil reached the Clinch River.

Mr. King reported that 125,000 gallons of raw sewage by-passed the sewage plant last month when a sudden storm dumped three inches of rain in one hour on the ORNL area. The resulting runoff flooded the sewage pumps which became inoperative, making the by-pass operation necessary.

Mr. Conrad reported a fire in a pile of wood in the spoil area at Paducah occurred over the July 4 week-end. Smoke from the fire was noted by a local air pollution group which complained to the Plant. Corrective measures will be taken to prevent future occurrences.

Mr. Martin mentioned a Headquarters request for information on the effect the ban on freon usage as an aerosol propellant would have on gaseous diffusion plant operations. The major concern seems to be the effect the ban may have on freon manufacture and availability since 25 million of the 27 million pounds of F-114 manufactured last year went to banned uses.

Mr. Baker discussed problems encountered with the first attempt to smelt contaminated nickel. These included fluorine attack of the furnace liner and excessive particulate matter and radioactivity which were not removed by the filtration system. Solutions to these problems will have to be found before smelting of contaminated nickel scrap can continue.

Meeting Schedule

The next joint UCC-ND and GAT Environmental Protection meeting will be held in Oak Ridge on November 16, 1977.


R. G. Jordan

RGJ:HHA:cm

Attachments

OAK RIDGE NATIONAL LABORATORY
STATUS OF POLLUTION CONTROL PROJECTS

Main Sewage Plant

At this plant all effluent parameters are generally within NPDES permit limits with the exception of Ammonia (N) which is almost continuously out of compliance. Plans are to request a revision in the NPDES permit limit for Ammonia (N) rather than install additional treatment capability since the slightly elevated effluent levels do not create a problem in the receiving stream because of the dilution by the stream.

7900 Area Sewage Treatment Plant

We continue to truck the effluent from this plant and add it to the influent of the main sewage plant. Presently no efforts are planned to bring this package plant into compliance with NPDES permit limits.

Cooling Tower Chromates

Use of chromates at all cooling towers have been eliminated by substitution of a polyphosphonate corrosion inhibitor. Use of the polyphosphonate inhibitor was begun about mid-June at the ORR pool water cooling tower, the last tower to use the chromate inhibitor.

pH Control of Steam Plant and Demineralizer Building Effluents

Installation of the transfer line from the Steam Plant is complete and modification of the old Process Waste Treatment Plant for use as a neutralizer is nearing completion. Some delay was experienced because of late delivery of electrical controls for the pumps and agitators. Also, installation of the neutralizer at the Bldg. 3004 Demineralizer is nearing completion; some delay was experienced due to the design changes. It is estimated that Rust Engineering will complete both jobs by July 31, 1977.

New Process Waste Treatment Plant

This plant continues to operate at better than design removal efficiencies.

STATUS OF ORGDP POLLUTION ABATEMENT PROJECTS - JULY, 19771. Containment of Oil and Hazardous Materials

The Containment of Oil and Hazardous Materials Project was divided into two portions, one being CPFF (Rust Engineering), the other lump sum (Hobson Construction Company). The CPFF portion consists of HF tank farm modifications including relocation of a tank, application of HF resistant surface coatings to the concrete dike, and process piping and instrumentation modifications. This portion of the project is approximately 95 percent complete.

The remainder of the project consists of diking transformers containing PCBs, installation of portable drain plugs in K-33, installation of a mechanized weir at the K-1407-B holding pond, construction of an equalization pit at K-1410, and floor drain modifications and sealing around walls at K-1413. This portion of the project was authorized in December, 1976 and is scheduled for completion by August 1, 1977. The project is presently about 93 percent complete, awaiting the arrival of last equipment items for the work at K-1407-B and K-1410.

2. Resoftening - Recycle of RCW Blowdown

This project facilitates the collection and the resoftening of the chromium containing blowdown from the RCW system so that it can be recycled without an unacceptable build up of dissolved solids. The newly installed system has reached sufficient stability that a blowdown of less than 100 gpm has been achieved; this amount is piped through an ANDCO chromate destruction unit to eliminate all hexavalent chromium ions. The effluent from this unit is currently pumped to the K-901-A holding pond where the sludge is allowed to settle out. The primary problems still encountered are primarily mechanical.

3. Segregation of Fire Water System from the RCW System

The nonchromate treatment for the fire water system is now on line and in operation. Although questions still remain concerning the use of RCW in the event of an emergency, the system is now ready for use.

4. Steam Plant Particulate Removal

The contract for constructing the foundations for the electrostatic precipitators and installing the associated electrical equipment was awarded to Cousins Construction Company. This portion of the project is now complete. The precipitators have been delivered and the projected date for completion of the project is November, 1977.

5. Purge Cascade Scrubber

The scrubber for the new ORGDP purge cascade (K-402-9) has been installed and is now in operation. The system appears to be efficient in removing uranium and fluorides. Uranium and technetium are precipitating in the primary loop where they are removed by filters. The built up precipitate is collected periodically and will be disposed of in the K-1407-C holding pond.

6. Drum Cleaning Facility

A facility for deheading and cleaning drums in an environmentally acceptable manner will be installed in FY-78. The project was funded as part of the FY-76A Transition Budget and has just completed the design stage.

7. Oil Removal System for K-1700

A facility for the continuous removal of surface oil at the K-1700 discharge weir is now being designed. Currently, oil from maintenance shops and parking lot runoff is contained by a floating boom and collected periodically.

STATUS REPORT ON POLLUTION CONTROL PROJECTSI. Acid Waste Recycle Plant

Nitric Acid Recycle - The distillation system is operating on a routine basis. A flange at the tantalum heater has been replaced with a 304 C stainless steel flange. A cost estimate of a S.S. flange with tantalum heaters is being obtained.

Aluminum nitrate recycle - The system is being routinely operated.

Biodenitrification Process - The process has operated since October, 1976, with only an occasional shut-down. The major operational problem has been control of the pH. Low pH values normally occur when acid wastes from ORGDP is being processed. A nominal 2,400 lbs of lime is added to each 5,000 gallons of solution from ORGDP.

II. Machine Coolant

An aerobic biological reactor is being used to decompose machine coolants into carbon dioxide gas. Process control parameters are being determined.

III. Sodium Hypochlorite

The waste solution will continue to be transported to the Knoxville sewage plant through 1980. If the volume of wastes increase as expected, a disposal problem will occur in 1981. Chemical disposal methods of the excess waste are being evaluated.

IV. Mercury

The bottling of mercury stored in Y-12 is almost complete. Two empty columns have been water washed and 150 lbs. of mercury were recovered from each column. Small droplets of mercury were found on

rings taken from the washed column. The wash water has been treated with sodium borohydride and filtered. Before treatment, the water contained a nominal 25 ppm of mercury. After treatment, the water contained 0.3 ppm mercury.

STATUS OF PGDP POLLUTION ABATEMENT PROJECTS

1. C-616 Chromium Treatment Facility

C-616 became operational in late June, 1977. Effluent analyses indicate that removal efficiency is well within design specifications and NPDES chromium standards are being met.

2. Air Intake Filter Cleaning

This project originally called for the construction of filter washing carts using high-pressure, nonchromated water to wash cascade air intake filters. Present plans are to construct a central filter washing facility inside the C-410 Building. This new facility should be operational by August, 1977.

3. C-600 Liquid Effluent Control

This project will treat oily wastes, boiler blowdown, ash transfer scrubber discharge and coal pile runoff from the steam plant. Anticipated completion date is August, 1977.

4. C-405 Incinerator Scrubber

The new scrubber has been tested for particulate emissions and is in compliance with State emission regulations. EPA and Kentucky air pollution control groups have been sent copies of the stack emission data.

5. C-611 Lagoon No. 3

This lagoon is now operational. No problems are foreseen in meeting the 1977 NPDES limits on suspended solids.

6. C-616 pH Control System

This project is almost complete. At present, acidification of the Diversion Ditch flow is not required.

7. C-600 SO₂ Monitor

Installation of a continuous SO₂ monitor for steam plant emissions is scheduled for completion in January, 1978.

8. Steam Plant Low Sulfur Coal

The C-600 Steam Plant began burning low sulfur (~0.7%) coal during June, 1977 to meet Kentucky air emission regulations (allowing emissions of 1.2 lbs SO₂/10⁶ BTU).

POLLUTION ABATEMENT PROJECTS
AT THE PORTSMOUTH GASEOUS DIFFUSION PLANT

1. X-611 Recycle Line

The recycle line would return the supernatant effluent from the X-611-B lagoon to the X-611 Water Treatment Plant. This would eliminate the discharge stream, solve the recurring pH problem, and contribute another source of raw water to the Portsmouth Plant. Anticipated completion is March 31, 1978.

2. X-611 Recarbonation

A carbon dioxide injection system will stabilize the sanitary water and lower its pH to within acceptable limits. When completed in March, 1978, this project will insure NPDES pH compliance at four outfalls.

3. X-611 Drain Line Modification

Drain lines have been connected to the sludge line going to the X-611-A sludge lagoon, eliminating the X-611 Water Treatment Plant discharge to Little Beaver Creek. This system is now in operation.

4. pH Adjustment Station at South Holding Pond

This station will automatically add sodium hydroxide to the South Holding Pond effluent when the pH is low, eliminating all NPDES compliance problems at this outfall. This new system should be operational by October, 1977.

5. X-611 Sludge Box Expansion

The new sludge vault will be amply large to accomodate the expected flows from X-611, thus eliminating all overflow conditions. The new vault is now under construction and should be in operation by September, 1977.

6. Rerouting X-701-B Holding Pond Effluents

The X-701-B pond effluents will be piped to the RCW blowdown stream which is discharged into the Scioto River. The Scioto River provides a large dilution ratio (3000 to 1) which will make it possible for the Portsmouth Plant to comply with the State of Ohio EP-1 regulations. This project is in the FY-1977 budget, but is still being evaluated. No definite decisions have been made regarding this project.

BJR:ksb

AGENDA
JOINT MEETING - UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION
COMMITTEE AND GAT ENVIRONMENTAL CONTROL REPRESENTATIVES
November 16, 1977 - 9:00 a.m.
Oak Ridge

1. Discussion of Proposed Change in Sample Exchange and Analysis Program -- Each Installation Representative
2. NPDES Compliance Problems -- Each Installation Representative
3. Problems With Cooling Tower Windage -- M. C. Conrad
4. Proposed Two-Day Seminar on Waste Management Activities -- H. H. Abee
5. Alternative Decontamination Agents -- Mark Holland, GAT
6. Planning for 1983 BATEA -- Each Installation Representative
7. Y-12 Steam Plant Compliance Problems -- M. Sanders
8. Update on Mercury Concentrations in Poplar Creek Fish -- J. F. Wing
9. Clean-up of Man Program Facilities -- M. E. Mitchell
10. Pollution Control Projects - Status -- Each Installation Representative

RGJordan:cm
10/31/77

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<i>4/13/95</i> Date

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Kevin S. Smith
Technical Information Officer
Oak Ridge K-25 Site

4/28/95
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UCC-ND ENVIRONMENTAL MONITORING AND PROTECTION COMMITTEE MEETING
November 16, 1977

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Kevin J. Quirk 4/13/95
Technical Information Officer (B) Date
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UCC-ND Environmental Monitoring and Protection Committee Meeting

November 16, 1977

A joint meeting of the UCC-ND Environmental Monitoring and Protection Committee and GAT Environmental Control representatives was convened November 16, 1977, at 9:00 a.m. in Oak Ridge. Those in attendance were H. H. Abee, R. C. Baker, M. C. Conrad, R. L. Davis, V. S. Emler, T. A. Harvey, Mark Holland, R. G. Jordan, E. M. King, M. E. Mitchell, J. M. Napier, W. D. Netzer, J. H. Pashley, M. Sanders, S. S. Stief, and L. H. Stinton. J. F. Wing from the DOE-ORO Environmental Protection Branch was an invited guest.

Discussion of Proposed Change in Sample Exchange and Analysis Program

Mr. Abee stated that, following review of past data generated from the environmental sample exchange and analysis program by the Y-12 Quality Assurance staff, Mr. Harvey of the Statistical Services group has made several recommendations for changes in the program which will permit more meaningful comparison of the analytical results with regard to both level and variation and permit statistical statements that relate to data agreement.

Mr. Harvey briefly reviewed the current environmental water control program which involves the analysis of purchased standardized environmental water samples. It was pointed out that in the case of the sample exchange program being conducted by the Environmental Control groups, the true value of the concentration in the environmental samples collected is not known; therefore, a better statistical design in the program is needed to permit meaningful comparisons of the data generated. The recommendations for changes in the program are as follows:

1. For each type of sample interest, one of the participating installations should obtain an extra large sample from the environment for the purpose of generating a three months supply of samples for all of the participating analytical laboratories. The responsibility for sample collection should be alternated among the installations, with only one installation collecting the samples for any given quarterly period. Each such sample should be thoroughly homogenized and divided into eighteen smaller samples, each of which is of sufficient size for a complete analysis. Six of these samples should be distributed to each of the participating analytical laboratories. Each laboratory should analyze its six samples according to some predetermined schedule that spans the entire quarterly period (applies only to those samples which will remain stable for the duration of the period of analysis).
2. The samples should remain anonymous while in the laboratory; that is, the analyst should not be aware that the samples are special in nature. Neither should the samples receive any kind of special attention that other samples do not receive.

Mr. Conrad questioned the need for spacing the analysis of samples over the quarterly period and stated that maintaining the anonymity of the samples at Paducah might be difficult. Mr. Harvey indicated that these criteria were important to prevent the introduction of bias into the results.

Mr. Emler indicated that GAT would like to participate in the sample exchange and analysis program; thus, the number of samples to be distributed each quarter would have to be increased from eighteen to twenty-four.

It was agreed to incorporate the recommendation into the program beginning with the March sample collection. Sample types to be analyzed will be determined by the plant Environmental Control Departments and a rotating collection schedule will be determined by the first of the year.

NPDES Compliance Problems

Mr. Mitchell presented a series of slides which compared the number of ORGDP noncompliance reports per month at the beginning of FY 1977 to the number per month at the end of FY 1977. Comparisons were made by both NPDES release points and effluent parameters. Significant reductions in noncompliance reports were noted at all release points except for the K-1203 and K-710 sewage plants. The predominant noncompliance parameter at these locations is chlorine residual with occasional noncompliance instances involving suspended solids. Corrective measures are under investigation.

Mr. Netzer reviewed Goodyear's noncompliance problems. Most noncompliance occurrences have been pH violations. Some problems with high nitrate releases were experienced but a change in decontamination techniques has reduced nitrate releases to more acceptable levels. Release of ammonia, which was not included as an NPDES permit parameter, has also been somewhat of a problem but has been essentially eliminated by the change in decontamination technique. Mr. Netzer noted that Portsmouth has one release point for which a permit was not obtained in the initial permitting procedure.

Mr. Conrad noted that more restrictive limits incorporated into the PGDP final NPDES permits have resulted in a number of violations not encountered previously. This is particularly reflected in the number of violations of maximum stream temperature limits in Little Bayou and Big Bayou Creeks. These violations occur generally during the hot part of the day and at present there does not appear to be a solution to the problem. Chromium violations are also occurring frequently in both creeks. The source of chromium causing these violations appears to be chromated RCW water which is blown outside the cooling tower basins by the wind. Occasional pH violations are occurring also in the creeks. The sources of these violations are being investigated.

Mr. Sanders reported that the Y-12 Plant is essentially in compliance with all NPDES permit parameters. Only one instance of noncompliance has occurred in the last 12 months. Meeting the NPDES permit limit for zinc may become a problem in the future unless the zinc concentration in the incoming water from the water plant (zinc is used as a corrosion inhibitor) is reduced or the NPDES permit limit is increased. The effluent is currently in a borderline situation with regard to zinc compliance.

Mr. King indicated ORNL is operating within NPDES permit limits currently, with the exception of ammonia nitrogen in the sewage plant effluent. This parameter has been almost continually out of compliance since startup of the plant. EPA and the State have expressed reluctance to provide relief on the ammonia nitrogen limit unless justification for such relief can be provided. The inefficiency of the plant in meeting the limit is not considered justification for a change in the limit. A study of the effect of ammonia nitrogen on White Oak Creek is planned to hopefully provide data showing a sufficiently low impact on stream water quality to provide justification for a change in the release limit.

Mr. King stated that White Oak Creek has been in compliance with pH limits since about the middle of October when steam plant and demineralizer building neutralization facilities went on line.

Mr. Wing noted that the State of Tennessee has requested authority from EPA to administer the NPDES permit program for all waste dischargers located within the State. The effect of this change in authority on federal facilities is indeterminate at the present time because of the pending amendments to the Federal Water Pollution Control Act.

Problems With Cooling Tower Windage

Mr. Conrad distributed a number of photographs which illustrated the cooling tower windage problem. Wind passing through the open lower sections of the cooling towers blows the falling RCW water outside the cooling tower basin onto the ground with subsequent runoff via plant ditches to both Big Bayou and Little Bayou Creeks and results in chromium NPDES violations in the Creeks. Windage losses associated with the new type cooling towers recently placed into service is particularly bad because of the straight-sided design of the cooling towers. Runoff flows in some of the ditches have been measured as high as 175 gallons per minute. Alternative solutions to correct the windage problem are under consideration.

Proposed Two-Day Waste Management Technology Conference

H. H. Abee announced a two-day Waste Management Technology Conference sponsored by the Y-12 Development Division which is planned for January 25 and 26, 1978. The program is organized into five sessions of summarized presentations concerning activities centered around liquid effluents, gaseous discharges, solids disposal problems, research activities, and monitoring and permit compliance matters. A sessions chairman has been selected for each of the sessions and staff members will be contacted in the near future regarding papers for presentation in each of the sessions. The purpose of the meeting is to bring attention to the problems being addressed throughout the Nuclear Division by

identifying existing and potential problem areas; the active efforts being mounted to solve these problems; and most importantly, to offer the opportunity to people working at different sites to be aware of other ongoing activities thereby opening additional avenues for technological exchange.

Alternative Decontamination Agents

Mr. Holland of the Goodyear Process Technology Department described recent laboratory and production studies of alternative decontamination agents for use at the GAT X-705 Uranium Decontamination and Recovery Facility. Previously, only ammonium carbonate and nitric acid were used as decontamination agents, and both the nitrate and the undissociated ammonia were causing NPDES compliance problems.

After extensive laboratory study, the use of sodium carbonate and citric acid was initiated in the X-705 facility as a production test. Because of corrosion problems, the sodium carbonate cannot be used to decontaminate aluminum parts, but citric acid is acceptable for cleaning all types of equipment. To date, the production tests have been quite successful. The new chemicals are better decontamination agents, and the chemical costs are approximately equal. The ammonia concentrations in X-705 effluents have been reduced to background levels, and the nitrate concentrations have been reduced by more than 50 percent.

Planning For 1983 BATEA

Mr. Conrad discussed BATEA planning at PGDP which included additional ponds in plant drainage ditches and the creeks to provide capability for oil removal and pH control, a treatment facility for treating miscellaneous chemical discharges, a denitrification facility, and collection of chromated RCW water resulting from windage losses from cooling towers.

Mr. Sanders described the work of a Y-12 Committee organized to study BATEA and future pollution control needs. The committee identified 22 areas of potential pollution control needs and an action plan was developed to provide development support and engineering cost estimates for work on the identified projects. Mr. Sanders distributed a draft document containing a schedule and format for Executive review of proposed line item projects, descriptions of the identified problem areas, and proposed work in each area.

Mr. King stated that, using the guidance provided by DOE, the Divisions generating wastes at ORNL were reviewed with regard to the need for application of BATEA. Currently, no problem areas have been identified which will require BATEA. Treatment of coal pile runoff may be required following conversion of the steam plant to coal burning equipment. Those Divisions developing new processes will be asked to incorporate BATEA into the project planning.

Mr. Netzer listed GAT BATEA considerations as biodenitrification for X-705, pyrranol containment in process buildings, emergency containment ponds, sewage plant improvements, and redundant return lines for synchronous condensers.

Mr. Mitchell showed a vu-graph of ORGDP problem areas and proposed BATEA plans under consideration to resolve these problems. Problem areas include reduction of nitrates and metals in K-1700 effluent, better control of steam plant blowdown pH, reduction of nickel in K-1410 effluent, further treatment of sewage plant effluent, and new retention basins for controlling pH in effluent from RCW make-up water sludge.

Mr. Wing discussed a DOE proposal to retain an outside consulting firm to study all of the installations' effluent data and to recommend BATEA alternatives for those streams where BATEA may be required. It is DOE's opinion that such a study by an outside firm which has done work for and has a good rapport with EPA and has a working knowledge of BATEA applications throughout industry would expedite the BATEA planning process. In addition, proposed applications of BATEA might be more acceptable to EPA. The selection of BATEA from the alternatives recommended and the design and installation of equipment would be a function of the installation engineering organization. A request for effluent data from each installation will be issued in the near future.

Y-12 Steam Plant Compliance Problems

Mr. Sanders discussed the potential noncompliance situation with regard to particulate emissions from the Y-12 steam plant. An 18.5 million dollar line item project for upgarding the steam plant included 8.5 million dollars for electrostatic precipitators; however, the ESP part of the project is currently not being funded. Test data on the existing electrostatic precipitators gathered last summer by an outside consulting firm failed to determine a definitive answer regarding compliance due to questionable sampling locations and discrepancies with the data collected. Precipitators will be retested by another firm during the early part of next year using appropriate sampling locations agreed upon by the State and EPA. State regulations require the installation of continuous opacity monitoring equipment on the stacks. Cost estimates for the installation of opacity monitors are being developed.

Update on Mercury Concentrations in Poplar Creek Fish

Mr. Wing stated that the data thus far from the spring fish sampling program in Poplar Creek show that mercury concentrations in fish are not as great as indicated in the first sampling run. Only rough fish, primarily gar, contained mercury concentrations in excess of the proposed FDA limit of 0.5 ppm. Analysis of about half the spring fish sampling is yet to be completed but the results are not expected to be significantly different from the results in hand. A fall sampling of fish is in progress which should complete the fish sampling study.

Clean-up of MAN Program Facilities

Mr. Mitchell stated that when the MAN program was terminated, personnel vacated the facility, leaving a considerable amount of toxic chemicals and biohazardous materials in the facility. Projected occupancy by ORGDP personnel required a thorough cleaning of the facility and disposal of the toxic materials. Following an upset in sewage plant operation it was discovered that personnel cleaning the facility were disposing of some toxic materials via the laboratory sinks.

This practice was terminated and currently hazardous materials are being properly packaged and shipped to Y-12 for disposal. The clean-up program is in the final stage of completion.

Current Pollution Control Projects - Status

A brief summary of the status of current pollution control projects was submitted by each installation and is attached to the minutes.

Items of Note

Mr. Napier briefly described a Y-12 pilot plant currently in operation to demonstrate the feasibility of a concept for the biodegradation of machine coolants and, hopefully, other oil wastes. The pilot plant is a stirred tank system (an abandoned cooling tower basin is used as a tank) which is slug fed on an hourly basis and batch discharged after biodegradation.

Meeting Schedule

The next meeting will be a joint UCC-ND Committee/GAT meeting to be held at the Portsmouth Gaseous Diffusion Plant. The date for the meeting will be announced at a later time.


R. G. Jordan

RGJ:HHA:cm

Attachments

STATUS OF ORGDP POLLUTION ABATEMENT PROJECTS

Containment of Oil and Hazardous Materials

The containment of oil and hazardous materials was divided into two portions-- CPFF (Rust Engineering) and lump sum (Hobson Construction Company). The CPFF portion consists of HF tank farm modifications including relocation of a tank, application of HF resistant surface coatings to the concrete dike, and process piping and instrumentation modifications. This portion of the project is complete.

The remainder of the project consists of diking transformers containing PCBs, installation of portable drain plugs in K-33, installation of a mechanized weir at the K-1407-B holding pond, construction of an equalization pit at K-1410, and floor drain modifications and sealing around walls at K-1413. This portion of the project was authorized in December, 1976. The project construction is essentially complete, with start-up of the systems at K-1410 and K-1407-B anticipated by December, 1977.

Steam Plant Particulate Removal

The contract for constructing the foundations for the electrostatic precipitators and installing the associated electrical equipment was awarded to Cousins Construction Company. This portion of the project is now complete. The precipitators have been delivered; and the boilers were shut down on October 28, 1977 for the final tie-in of the precipitators. The projected date of completion for precipitator Number One is in December, 1977. Completion of the entire project is anticipated by February, 1978.

Drum Cleaning Facility

A facility for deheading and cleaning drums in an environmentally acceptable manner will be installed in FY-78. The project was funded as part of the FY-76A transition budget and the design work has just been completed.

Oil Removal System for K-1700

A facility for the continuous removal of surface oil at the K-1700 discharge weir is being designed. Currently, oil from maintenance shops and parking lot runoff is contained by floating boom and periodically collected manually. The new installation will provide for automatic collection of the oil.

Burial Ground Test Wells

A set of groundwater monitoring wells is being drilled to evaluate the leaching of materials from the classified burial ground and the K-1407-C holding ponds. These wells should be ready for use by December, 1977.

STATUS OF POLLUTION CONTROL PROJECTS AT ORNL

Main Sewage Plant

At this plant all effluent parameters are generally within NPDES permit limits with the exception of Ammonia (N) -- which is almost continuously out of compliance. Additional aeration of the ponds was begun in early July, and for a period (mid-July to mid-September) it appeared that we might be in compliance. However, since mid-September we have again been continuously out of compliance. So again, plans are to request a revision in the NPDES permit limit for Ammonia (N) since the slightly elevated effluent levels do not create a problem in the receiving stream because of the dilution by the stream.

pH Control of Steam Plant and Demineralizer Building Effluent

Installation of new equipment and modification of the existing facilities were completed for neutralization of the Steam Plant and the Bldg. 3004 Demineralizer wastes. We are now in compliance with NPDES permit limits (6 to 9) for pH in White Oak Creek.

Status of PGDP Pollution Abatement Projects

November, 1977

1. C-616 Chromium Treatment Facility

Effluent quality continues to be excellent. Typical effluent concentrations are 0.01 mg/l Cr⁺⁶, 0.1 mg/l total chromium, 0.1 mg/l Zn, 0.05 mg/l Cu, and 5 mg/l suspended solids. These values are well below allowable effluent levels.

2. Air Intake Filter Cleaning

Installation of the centralized filter cleaning equipment has been completed but operation has not yet begun. Some filter cleaning has continued at the cascade buildings by using sanitary water connections and firehoses.

3. C-600 Liquid Effluent Control

Collection of coal pile runoff, ash silo scrubber discharges and boiler blowdown was commenced on September 20. These wastes are now routed to the C-616 full flow lagoon via the Diversion Ditch. Oil skimmer modifications to prevent the overflow of oil during heavy rains were completed during August. Installation of a continuous oil skimmer inside C-600 has not been completed.

4. Steam Plant Particulate Emission Control

Bid closing for the installation of the electrostatic precipitators is scheduled for November 29. A contract was awarded for the new electrical substation and delivery appears to be compatible with the present project schedule. The expected project completion date is still well beyond the Kentucky and EPA proposed completion date.

5. Steam Plant SO₂ Emission Reduction

The sulfur content of the coal received from our suppliers continues to be slightly higher than required by Kentucky regulations. We have received assurances from the suppliers that they will be more selective in the coal shipped to us in the future. Coal received from World Coal Company Mine No. 1 has consistently had a sulfur content above one percent. Shipments from this mine are being discontinued.

6. New Sanitary Landfill

The proposed location for the new sanitary landfill is a site adjacent to the present Construction Spoils Area. The design and operation of this new landfill will comply with state and federal solid waste regulations.

11-11-77

MCC:lr

PENDING GAT NPDES PROJECTS

<u>NPDES Project</u>	<u>Completion</u>	<u>Date</u> <u>Operation</u>
Recycle Line: X-611-B to X-611	3/78	4/78
Recarbonation: X-611	7/78	8/78
pH Adjustment Station: South Holding Pond	6/78*	7/78*
Sludge Vault Expansion: X-611	3/78	4/78

*Just approved by DOE